

Competency-based education for CBSE

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# Item Bank:

# Maths Class 8

September 2021

# Introduction for teachers

A bank of resources has been created to support teachers to develop and administer end-of-class tests. These resources should be used together. You can view and download the following resources from <http://cbseacademic.nic.in>

- Learning ladder for maths
- Assessment specification for maths
- Sample lesson plans

This document is a compilation of the sample items for maths class 8. There are 81 items.

This item bank is supported by the assessment specification which sets out the end-of-class assessment requirements and the learning ladder for the subject which maps the CBSE syllabi content to the NCERT curriculum. The item index (page 6) shows how each item maps to the learning ladder content and the assessment objectives.

## What these assessment items can be used for

You can use the bank of questions in whatever way you wish but three main purposes have been identified:

- Create end-of-class assessments using the items from the bank to meet the requirements set out in the assessment specifications.
- Create end-of-topic tests using the items from the bank for when you finish teaching a topic.
- Use individual or groups of questions from the bank to create or add to worksheets for use in class and for homework.

## What is in this document

You will find linked questions and single questions which cover different aspects of the learning ladder content and different assessment objectives. You can use these questions to create your own assessments.

Each item in this document begins with the metadata (see Figure 1). The metadata gives details of the content, assessment objective coverage and the number of marks.

There is then a section showing any source material needed followed by the questions themselves and finally the mark scheme for the questions.

Item identity	AO1 marks	AO2 marks	C/N/E*	Content reference from the learning ladder	Marks
Maths6AS1	1		N	6A1a Form and use algebraic expressions (up to 2 variables, including use of brackets)	1

\*C = Calculator required, N = Calculator not allowed, E = Either

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## How to use the assessment items

You can peruse the bank of items by flicking through this document and selecting questions you wish to use. However, if you are assessing specific content then you can use the learning ladder to identify this content and then use the item index (page 6) to find any items which cover that content.

Please note that not all of the content will have items. The item bank is only a sample of the questions which could be created so it may be necessary for you to write questions of your own to fill gaps.

When you find a relevant assessment item in this document, you can copy and paste the question(s) and any source material into a new Word document which will form the assessment or worksheet. Other questions from the bank can be copied and pasted to this document and an assessment or worksheet covering a range of items created. The questions can then easily be edited in the new document using Word and you can add any questions you write to best meet the needs of your classes.

Once the questions have been pasted into the new document the numbering of the items can be changed so that they run through 1, 2 etc. There should be no need to change the numbering of parts (a), (b) etc. unless a question has been deleted.

You can create the mark schemes in the same way by copying the relevant section of the item documents and pasting them into a separate Word document which will form the mark scheme. Again, the question numbering will need to be amended. You can use these mark schemes to make sure that the marking is standardised, particularly if more than one teacher uses the assessment.

When creating an end-of-class test the teacher should use the assessment specification to identify the number of marks and questions needed, the balance of content to be covered and the weighting of the assessment objectives needed. You can then select items from the bank to build a test that meets the assessment specification and then order these in a logical manner so that it allows the students to work through the assessment. You should also add a front page with the assessment name and details of the number of marks and the length of the assessment. Again, the mark scheme can be created at the same time and question numbers will need to be amended.

When copying items from the bank care needs to be taken to keep the format and style of the items consistent including the spacing and layout and ensuring that the number of marks available for each question is clearly linked to the question.

# Assessment objectives

This document sets out the assessment objectives for CBSE mathematics and their percentage weighting for the CBSE end of year tests for the different classes from VI to X.

No.	Description of Assessment Objective	Class				
		VI	VII	VIII	IX	X
AO1	Demonstrate knowledge and understanding of mathematical ideas, techniques and procedures.	50 - 65	50 - 65	50 - 65	40 - 55	40 - 55
AO2	Apply knowledge and understanding of mathematical ideas, techniques and procedures to classroom and real world situations	35 - 50	35 - 50	35 - 50	45 - 60	45 - 60

## **Demonstrate knowledge and understanding of mathematical ideas, techniques and procedures.**

Students should be able to recall and apply mathematical knowledge, terminology and definitions to carry out routine procedures or straightforward tasks requiring single or multi-step solutions in mathematical or everyday situations. At appropriate class levels this would include:

- working accurately with information presented in words, tables, graphs and diagrams
- using and interpreting mathematical notation correctly
- using a calculator to perform calculations where appropriate
- understanding and using systems of measurement in everyday use
- estimating, approximating and working to appropriate levels of accuracy, and converting between equivalent numerical forms
- using geometrical instruments to measure and to draw to appropriate levels of accuracy
- recognising and using spatial relationships in two and three dimensions

## **Apply knowledge and understanding of mathematical ideas, techniques and procedures to classroom and real-world situations.**

Students should be able to reason, interpret and communicate mathematically when solving problems. They should be able to analyse a problem, select a suitable strategy and apply appropriate techniques. At appropriate class levels this would include:

- presenting arguments and chains of reasoning in a logical and structured way
- assessing the validity of an argument

- 
- interpreting and communicating information accurately, and changing from one form of presentation to another
  - solving unstructured problems by putting them into a structured form
  - recognising patterns in a variety of situations and forming generalisations
  - applying combinations of mathematical skills and techniques using connections between different areas of mathematics
  - making logical deductions, making inferences and drawing conclusions from given mathematical information, including statistical data
  - interpreting results in the context of a given problem

*Note: proportions for these AOs are presented as ranges. We suggest that the initial balance might use the high end of AO1 with the low end of AO2, moving over time towards increasing the proportion of AO2 over time as the new pedagogical approach is embedded.*

# Item Index

Assessment ID	Assessment Topic	File name	Question ID	AO1	AO2
8A1a	Algebra	<a href="#">Maths8BS2</a>	Maths8BS2	1	
8A1a	Algebra	<a href="#">Maths8DB6</a>	Maths8DB6	2	
<b>8A1c</b>	<b>Algebra</b>	<b><a href="#">Maths8BS3</a></b>	<b>Maths8BS3</b>	<b>1</b>	
8A2a	Algebra	<a href="#">Maths8AM2</a>	Maths8AM2	1	
8A2a	Algebra	<a href="#">Maths8DB7</a>	Maths8DB7		2
8C1a	Coordinate geometry	<a href="#">Maths8AM4</a>	Maths8AM4	1	
8C1a	Coordinate geometry	<a href="#">Maths8BS6</a>	Maths8BS6b	1	
8C1a	Coordinate geometry	<a href="#">Maths8BS6</a>	Maths8BS6a		3
8C1a	Coordinate geometry	<a href="#">Maths8DB2</a>	Maths8DB2		3
8C1b	Coordinate geometry	<a href="#">Maths8BS1</a>	Maths8BS1	1	
8G1a	Geometry	<a href="#">Maths8AM3</a>	Maths8AM3	1	
8G1a	Geometry	<a href="#">Maths8PW3</a>	Maths8PW3	1	
8G1a	Geometry	<a href="#">Maths8PW7</a>	Maths8PW7a	1	
8G1a	Geometry	<a href="#">Maths8CN4</a>	Maths8CN4	1	
8G1a	Geometry	<a href="#">Maths8BS3</a>	Maths8BS3	1	
8G1a	Geometry	<a href="#">Maths8PW7</a>	Maths8PW7c		2
8G1a	Geometry	<a href="#">Maths8NB5</a>	Maths8NB5a		2
8G1b	Geometry	<a href="#">Maths8AM7</a>	Maths8AM7a	1	
8G1b	Geometry	<a href="#">Maths8DB3</a>	Maths8DB3a	1	
8G1b	Geometry	<a href="#">Maths8DB3</a>	Maths8DB3b	1	
8G1b	Geometry	<a href="#">Maths8DB3</a>	Maths8DB3c	1	
8G1c	Geometry	<a href="#">Maths8NB6</a>	Maths8NB6c	2	
8G1c	Geometry	<a href="#">Maths8AM7</a>	Maths8AM7b		2
8G1d	Geometry	<a href="#">Maths8PW4</a>	Maths8PW4	1	
8G1d	Geometry	<a href="#">Maths8NB2</a>	Maths8NB2	1	
8G1d	Geometry	<a href="#">Maths8AM7</a>	Maths8AM7c		2
8G2a	Geometry	<a href="#">Maths8NB1</a>	Maths8NB1	1	
8G2b	Geometry	<a href="#">Maths8PW7</a>	Maths8PW7b	1	
8G2b	Geometry	<a href="#">Maths8NB4</a>	Maths8NB4a	1	
8G4a	Geometry	<a href="#">Maths8NB4</a>	Maths8NB4b		2
8M1a	Mensuration	<a href="#">Maths8DG1</a>	Maths8DG1		1
8M2a	Mensuration	<a href="#">Maths8PD4</a>	Maths8PD4		3
8M2c	Mensuration	<b><a href="#">Maths8SK4</a></b>	Maths8SK4a	1	
8M2c	Mensuration	<a href="#">Maths8DG6</a>	Maths8DG6a	2	
8M2c	Mensuration	<b><a href="#">Maths8SK4</a></b>	Maths8SK4b		2
8M4a	Mensuration	<a href="#">Maths8DG4</a>	Maths8DG4b		2
8M4a	Mensuration	<a href="#">Maths8DB4</a>	Maths8DB4		3
8M4b	Mensuration	<a href="#">Maths8PR3</a>	Maths8PR3	1	
8M4b	Mensuration	<a href="#">Maths8DG4</a>	Maths8DG4a	1	

8M4b	Mensuration	<a href="#">Maths8PR5</a>	Maths8PR5	1
8N2a	Number systems	<a href="#">Maths8PR6</a>	Maths8PR6a	1
8N2a	Number systems	<a href="#">Maths8PN2</a>	Maths8PN2	1
8N2a	Number systems	<a href="#">Maths8NB3</a>	Maths8NB3	1
8N2a	Number systems	<a href="#">Maths8PR6</a>	Maths8PR6b	2
8N2b	Number systems	<a href="#">Maths8AM1</a>	Maths8AM1	1
8N2b	Number systems	<a href="#">Maths8PN3</a>	Maths8PN3	1
8N2b	Number systems	<a href="#">Maths8BS4</a>	Maths8BS4	1
8N2b	Number systems	<a href="#">Maths8BS5</a>	Maths8BS5	1
8N2b	Number systems	<a href="#">Maths8DB5</a>	Maths8DB5	1
8N2b	Number systems	<a href="#">Maths8DG3</a>	Maths8DG3	1
8N2b	Number systems	<a href="#">Maths8NB5</a>	Maths8NB5b	2
8N3a	Number systems	<a href="#">Maths8PW1</a>	Maths8PW1	1
8N3a	Number systems	<a href="#">Maths8PN1</a>	Maths8PN1	1
8N3a	Number systems	<a href="#">Maths8PN6</a>	Maths8PN6a	2
8N3a	Number systems	<a href="#">Maths8PN6</a>	Maths8PN6b	2
8N3b	Number systems	<a href="#">Maths8PM3</a>	Maths8PM3	1
8N3c	Number systems	<a href="#">Maths8PR1</a>	Maths8PR1	1
8N3c	Number systems	<a href="#">Maths8PW6</a>	Maths8PW6a	1
8N3c	Number systems	<a href="#">Maths8DG2</a>	Maths8DG2	1
8N3c	Number systems	<a href="#">Maths8DG5</a>	Maths8DG5a	1
8N3c	Number systems	<a href="#">Maths8DG6</a>	Maths8DG6b	2
8N3c	Number systems	<a href="#">Maths8NB6</a>	Maths8NB6b	2
8N3c	Number systems	<a href="#">Maths8PW6</a>	Maths8PW6b	3
8N3c	Number systems	<a href="#">Maths8BS7</a>	Maths8BS7	3
8N3d	Number systems	<a href="#">Maths8PM5</a>	Maths8PM5a	2
8N3d	Number systems	<a href="#">Maths8PM5</a>	Maths8PM5b	2
8N3d	Number systems	<a href="#">Maths8DG5</a>	Maths8DG5b	2
8N4a	Number systems	<a href="#">Maths8PR4</a>	Maths8PR4	1
8N4a	Number systems	<a href="#">Maths8PW5</a>	Maths8PW5	1
8N4a	Number systems	<a href="#">Maths8NB6</a>	Maths8NB6a	1
8S1a	Statistics and probability	<a href="#">Maths8PN7</a>	Maths8PN7	3
8S2a	Statistics and probability	<a href="#">Maths8PN4</a>	Maths8PN4	1
8S2a	Statistics and probability	<a href="#">Maths8PN5</a>	Maths8PN5	1
8S2a	Statistics and probability	<a href="#">Maths8PM4</a>	Maths8PM4a	1
8S2a	Statistics and probability	<a href="#">Maths8PM4</a>	Maths8PM4b	1
8S2a	Statistics and probability	Maths8AM6	Maths8AM6a	2
8S2a	Statistics and probability	Maths8AM6	Maths8AM6b	2
8S2a	Statistics and probability	<a href="#">Maths8PM4</a>	Maths8PM4c	2
8S2a	Statistics and probability	<a href="#">Maths8PM2</a>	Maths8PM2	2
8S2a	Statistics and probability	<a href="#">Maths8PM4</a>	Maths8PM4d	2
8S3a	Statistics and probability	Maths8AM5	Maths8AM5	1





## Maths8BS2

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	VIII	Maths8BS2

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8BS2	1		N	8A1a Multiply and divide algebraic expressions (including 2 brackets and up to 2 variables)	1

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses to study the calculation from given measurement.*

### Sources and diagrams

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### Question

1 What is the area of a rectangle with length  $9y$  and breadth  $4y^2$

- A.  $4y^3$
- B.  $9y^3$
- C.  $13y^3$
- D.  $36y^3$

(1 mark)

**(Total mark 1)**

## Mark scheme

Observe the temperature time graph and answer the following question.

Choose the difference between the temperature at 7 hours and at 21 hours from the options below:

- A.  $4y^3$
- B.  $9y^3$
- C.  $13y^3$
- D.  $36y^3$

Answer	Guidance
D. $36y^3$	1 mark for correct answer

## Maths8DB6

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8DB6

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8DB6	2		N	8A1a Multiply and divide algebraic expressions (including 2 brackets and up to 2 variables)	2
<b>Total marks</b>	<b>2</b>				<b>2</b>

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assess the knowledge of multiplying binomial with brackets*

### Source(s)

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Source information: book/journal, author, publisher, website link etc.

### Question(s)

1 Multiply  $(a+7)(b-5)$

(2 marks)

**(Total marks 2)**

### Mark scheme

1 Multiply $(a+7)(b-5)$	
Answer	Guidance

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$ab - 5a + 7b - 35$	M1 $a(b-5) + 7(b-5)$ OR equivalent A1 $ab - 5a + 7b - 35$ OR equivalent
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## Maths8AM2

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8AM2

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8AM2	1		E	8A2a Form and solve linear equations in one variable	1

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses the students' ability to construct a linear equation in two variables*

### Source(s)

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Source information: book/journal, author, publisher, website link etc.

### Question

- 1 Khushi's present age is twice of Sania. If Sania's age four years ago was  $y$ . Then Khushi's present age is:

- A.  $2(y - 4)$
- B.  $2y - 6$
- C.  $2y + 4$
- D.  $2(y + 4)$

(1 mark)

**(Total mark 1)**

## Mark scheme

1. Khushi's present age is twice of Sania. If Sania's age four years ago was $y$ . Then Khushi's present age is: A.	
Answer	Guidance
D. $2(y + 4)$	A1 Sania's present age= $y+4$ Khushi's present age = $2(\text{Sania's present age})$ $= 2(y+4)$

## Maths8DB7

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8DB7

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8DB7		2	N	7A2a Solve simple linear equations in 1 variable with two operations	2
<b>Total marks</b>		<b>2</b>			<b>2</b>

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assess the knowledge of forming an equation and solving.*

### Source(s)

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Source information if copied: book/journal, author, publisher, website link etc.

### Question(s)

- 1 Shruti's age is  $x$  years. Her father is 4 years more than the 2 times of Shruti's age. Form an equation and solve it to find Shruti's age if her father age is 40 years.

Show your working.

(2 marks)

**(Total marks 2)**

### Mark scheme

- |   |
|---|
| 1 Shruti's age is $x$ years. Her father is 4 years more than the 2 times of Shruti's age. |
|---|

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Form an equation and solve it to find Shruti's age if her father age is 40 years. Show your working.	
Answer	Guidance
Shruti's age is 18 years.	M1 $2x + 4 = 40$ A1 18



## Maths8AM4

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8AM4

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8AM4	1		N	8C1a Plot points on a graph using coordinates	1

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses the students' ability to identify the point using coordinates*

### Source(s)

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Source information: book/journal, author, publisher, website link etc.

### Question

- 1 The coordinates of a point at a distance of 6 units from the x axis and 5 units from the y axis is
- A. (0, 5)
  - B. (6, 0)
  - C. (5, 6)
  - D. (6, 5)

(1 mark)

**(Total mark 1)**

## Mark scheme

1 The coordinates of a point at a distance of 6 units from the x axis and 5 units from the y axis is	
A. (0, 5) B. (6, 0) C. (5, 6) D. (6, 5)	
Answer	Guidance
C. (5, 6)	A1 x-coordinate (abscissa) =5 units y-coordinate (ordinate) = 6 units

## Maths8BS6

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8BS6

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8BS6a		3	E	8C1a Plot points on a graph using coordinates	3
Maths8BS6b	1		E	8C1a Plot points on a graph using coordinates	1
<b>Total marks</b>	<b>1</b>	<b>3</b>			<b>4</b>

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

The question assesses to working accurately with information presented in words, tables, graphs and diagrams

### Sources and diagrams

Time t in minutes	0	2	4	8	9
Temperature in °C	10	30	50	90	100

### Question

1 A certain amount of water was heated and the temperature at different intervals of time was observed as shown in the table above.

1(a) Draw a temperature-time graph from t = 0 minute to t= 9 minute  
(3 marks)

1(b) What would be the expected temperature of water at 7 minutes  
(1mark)

**(Total mark 4)**

## Mark scheme

1 (a) Draw a temperature-time graph from $t = 0$ minute to $t = 15$ minutes.	
Answer	Guidance
Complete graph 8C1a	A1 Correct time axis scale marked, <b>not</b> equal intervals between 4 to 8 and 8 to 9 A1 Straight line graph through correct points A1 Correctly labelled time and temperature axes

1 (b) What would be the expected temperature of water at 7 minutes?	
Answer	Guidance
80°C	A1 80°C Allow missing units

## Maths8DB2

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8DB2

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8DB2		3	N	8C1a Plot points on a graph using coordinates	3
<b>Total marks</b>		<b>3</b>			<b>3</b>

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

The question assess the knowledge of drawing a line graph.

### Sources and diagrams

No. Of litres	10	15	20	25
Cost in Rs.	500	750	1000	1250

### Question

- 1 The table above shows the cost of fuel in litres. Draw a line graph for this information with the x-axis of 0 litres to 25 litres.


(3 marks)

**(Total marks 3)**

### Mark scheme

1. The table above shows the cost of fuel in litres. Draw a line graph for this information with the x-axis of 0 litres to 25 litres



Answer	Guidance
 <p data-bbox="201 367 1002 824">A line graph showing Cost (in Rs) on the y-axis and Litres on the x-axis. The y-axis ranges from 0 to 1400 with major grid lines every 200 units and minor grid lines every 100 units. The x-axis ranges from 0 to 30 with major grid lines every 5 units and minor grid lines every 1 unit. A straight line is plotted starting at (0, 0) and ending at (25, 1250).</p>	<p data-bbox="1059 300 1362 367">A1 correct x axis and scale</p> <p data-bbox="1059 456 1362 568">A1 correct y axis and scale and at least 2 correct points plotted.</p> <p data-bbox="1059 658 1410 725">A1 complete correct line for x from 0 to 25</p>

## Maths8BS1

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8BS1

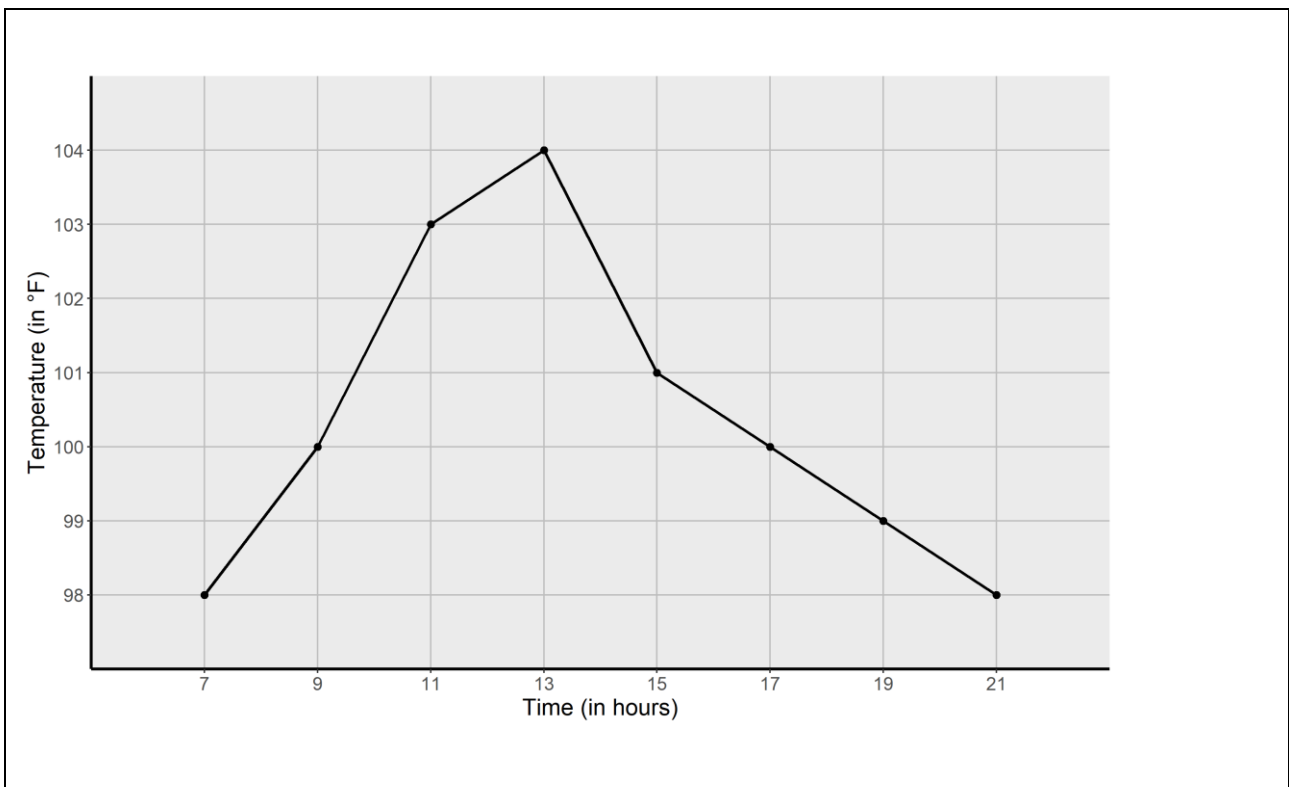
Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8BS1	1		N	8C1b Interpret line graphs	1

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

The question assesses to study the information from given graph.

### Sources and diagrams



## Question

- 1 Observe the temperature time graph and answer the following question.  
Choose the difference between the temperature at 7 hours and at 21 hours from the options below:

- A. 0°F
- B. 1°F
- C. 2°F
- D. 3°F.

(1 mark)

**(Total mark 1)**

## Mark scheme

Observe the temperature time graph and answer the following question.  Choose the difference between the temperature at 7 hours and at 21 hours from the options below:  A. 0°F B. 1°F C. 2°F D. 3°F.	
Answer	Guidance
A. 0°F	8C1b $98^{\circ} - 98^{\circ} = 0^{\circ}\text{F}$ 1mark allow to correct answer.



## Maths8AM3

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8AM3

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8AM3	1		N	8G1a Identify and use properties of quadrilaterals (square, rectangle, parallelogram, trapezium)	1

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses the ability to understand the properties of quadrilateral*

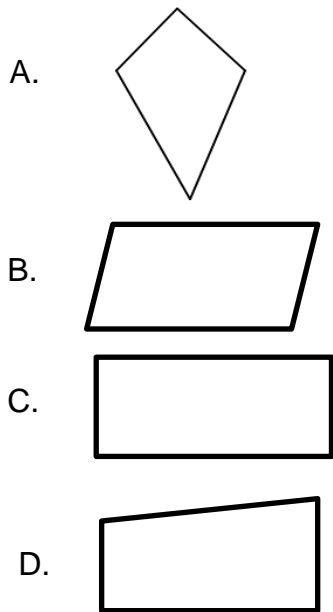
### Source(s)

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Source information: book/journal, author, publisher, website link etc.

### Question

- 1 Which one of the following figures satisfy the property: “only one pair of sides are parallel”?



(1 mark)

**(Total mark 1)**

### Mark scheme

1 Which of the following figures satisfy the property –“only one pair of side are parallel”?	
Answer	Guidance
D. Trapezium	A1 Trapezium has only one pair of sides parallel. 1 Mark can be given if student writes Trapezium

## Maths8PW3

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/Filename
Maths	8	Maths8PW3

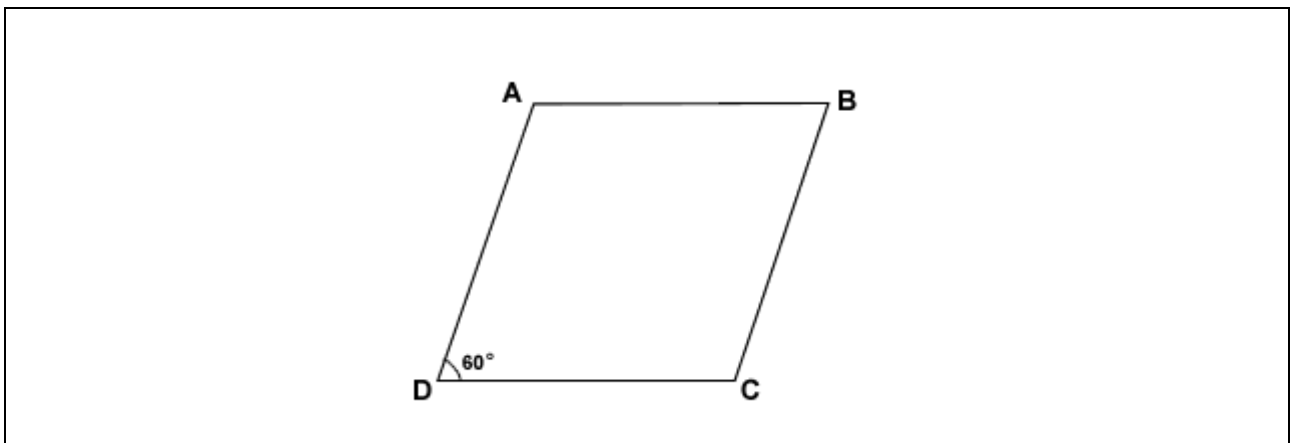
Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8PW3	1		N	8G1a Identify and use properties of quadrilaterals (square, rectangle, parallelogram, trapezium)	1

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses the application of properties of a parallelogram.*

### Source(s)



Source information: book/journal, author, publisher, website link etc.

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### Question(s)

1 The diagram above shows a parallelogram ABCD with angle  $D = 60^\circ$   
Which of the following has the greatest value?

- A.  $2\angle A - 2\angle B$
- B.  $\angle A + \angle B$
- C.  $\angle A + \angle D$
- D.  $3\angle C - 2\angle D$

(1 mark)

**(Total marks 1)**

### Mark scheme

1 The diagram above shows a parallelogram ABCD with angle $D = 60^\circ$ Which of the following has the greatest value?	
Answer	Guidance
D. $3\angle C - 2\angle D$	1 mark for correct answer

## Maths8PW7

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8PW7

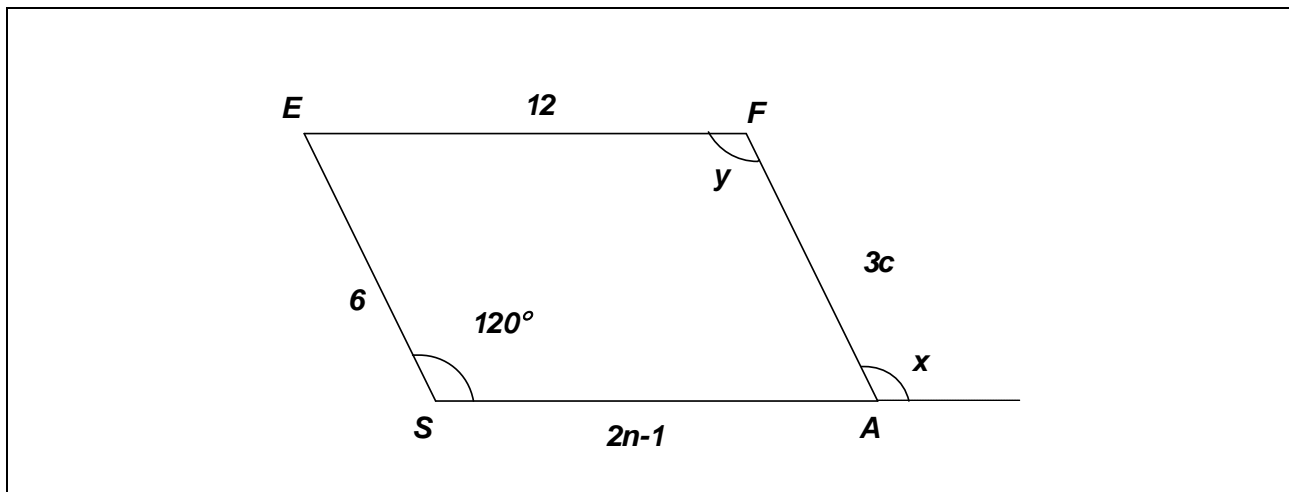
Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8PW7a	1		N	8G1a Identify and use properties of quadrilaterals: square, rectangle, parallelogram, trapezium	1
Maths8PW7b	1		N	8G2b Identify angle properties of parallelograms	1
Maths8PW7c		2	N	8G1a Identify and use properties of quadrilaterals: square, rectangle, parallelogram, trapezium	2
<b>Total marks</b>	<b>2</b>	<b>2</b>			<b>4</b>

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses the properties of a parallelogram*

### Source(s)



Source information: book/journal, author, publisher, website link etc.

### Question(s)

1 In the parallelogram SAFE given above  $\angle S = 120^\circ$

1 (a) Find the value of y

(1 mark)

1 (b) Find the value of x

(1 mark)

1 (c) Find the value of  $2n + 3c$

(2 marks)

**(Total marks 5)**

### Mark scheme

1 (a) Find the value of y	
Answer	Guidance
120°	A1 120° (opposite angles of parallelogram are equal $\angle S = \angle F = 120^\circ$ $y = 120^\circ$ )
1 (b) Find the value of x	
Answer	Guidance
$x = 120^\circ$	
1 (c) Find the value of $2n - 3c$	
Answer	Guidance
$2n + 3c = 19$	M1 Property used opposite sides of parallelogram are equal Either $2n - 1 = 12$ or $2n = 13$ OR $3c = 6$ OR $n = 6.5, c = 3$ A1 19

## Maths8NB4

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8NB4

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8NB4a	1		N	8G2b Identify angle properties of parallelograms	1
Maths8NB4b		2	N	8G4a Construct a quadrilateral using ruler and compass	2
<b>Total marks</b>	<b>1</b>	<b>2</b>			<b>3</b>

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

The question assesses the angle property and construction of a parallelogram.

### Source(s)

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Source information: book/journal, author, publisher, website link etc.

### Question(s)

1 Given a parallelogram ABCD in which  $AB=4$  cm ,  $BC=5.3$  cm and angle B measures  $60^\circ$ .

1 (a) What is the measure of angle D?

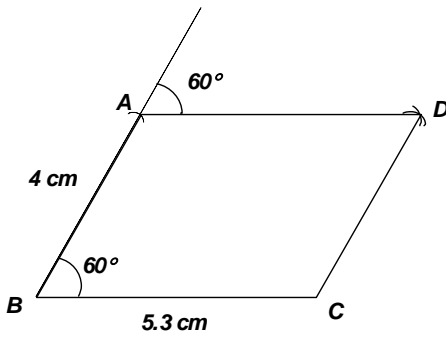
(1 mark)

1 (b) Construct the parallelogram ABCD using ruler and compasses only.

(2 marks)

(Total marks 3)

Mark scheme

1 (a) What is the measure of angle D?	
Answer	Guidance
60°	Accept with or without degrees Allow one mark for correct answer only.
1 (b) Construct the parallelogram ABCD using ruler and compasses only.	
Answer	Guidance
	M1 for a length of either 4 cm or 5.3 cm with the angle of 60°. M1 for a compass construction mark to show the second side (i.e. either 5.3 cm or 4 cm) A1 for completing the parallelogram (ideally either measuring second angle to get a pair of parallel sides and a compass measurement; or using two compass measurements from vertices A and C).  Allow 1mm error for each side. And 2 degrees error for each angle.  No marks if there are no construction marks.



## Maths8DG1

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/Filename
Maths	8	Maths8DG1

Item identity	AO1 marks	AO2 marks	C/N/E *	Content Reference(s)	Marks
Maths8DG1		1	N	8M1a Find the circumference of a circle	1

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses the application of formula of circumference of a circle.*

### Source(s)

--

Source information: book/journal, author, publisher, website link etc.

### Question(s)

- 1 Find the circumference of a circle whose radius is 7cm. Use  $\pi = \frac{22}{7}$ .

(1 mark)

**(Total marks 1)**

### Mark scheme

1 Find the area of a circle whose radius is 7cm.	
Answer	Guidance
44cm.	Allow one mark for correct answer only. Accept answer without units.

## Maths8PD4

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	7	Maths8PD4

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8PD4		3	C	7M2a Find the area of combinations of rectilinear shapes.	3

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses the knowledge to find out the area of different shapes.*

### Sources and diagrams



Source information if copied: book/journal, author, publisher, website link etc.

### Question(s)

- 1 Pizza factory has come out with two kinds of pizzas. A square pizza of side 45 cm costs Rs.150 and a circular pizza of diameter 50 cm costs Rs.160. (Thickness of both the pizzas is same.)

Which pizza is a better deal? Use  $\pi = 3.14$

(3 marks)

**(Total marks 3)**

### Mark scheme

1 Pizza factory has come out with two kinds of pizzas. A square pizza of side 45 cm costs Rs.150 and a circular pizza of diameter 50 cm costs Rs.160.	
1 (a) Which pizza is a better deal? Use pi = 3.14.	
Answer	Guidance
Square pizza is a better deal because it has a larger area with lesser cost.	<p>M1 Area of a square pizza = <math>Side \times Side</math>  <math>= 45cm \times 45cm</math>  <math>= 2025 cm^2</math></p> <p>Area of a circular pizza = <math>\pi r^2</math>  <math>= 3.14 \times 25 \times</math>  <math>25cm^2</math>  <math>= 1962.5cm^2</math></p> <p>A1: Area of a square pizza is more than the area of a circular pizza. Also, cost of a square pizza is lesser than the cost of a circular pizza. Hence, square pizza is a better deal.</p>

## Maths8DG6

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	VIII	Maths8DG6

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8DG6a	2		C	8M2c Find the area of a circle	2
Maths8DG6b		2	C	8N3c Calculate using percentages, including profit, discount and sales tax.	2
<b>Total marks</b>	<b>2</b>	<b>2</b>			<b>4</b>

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

The question assesses the application of formula of area of a circle, calculating using percentages including discount and finding area of a polygon.

### Source(s)

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Source information: book/journal, author, publisher, website link etc.

### Question(s)

1 Hurrem's Maths teacher asked her to make a beautiful wheel using a circle with a radius of 2.5 cm.

1 (a) What is the area of the circle? Give your answer correct to 1 decimal place.

(2 marks)

1 (b) The cost of colours was Rs 200. Hurrem saved 30% on that price. How much did she spend on colours?

(2 marks)

**(Total marks 4)**

## Mark scheme

1(a) What is the area of the circle? Give your answer correct to 1 decimal place.	
Answer	Guidance
Area =19.6cm <sup>2</sup>	M1 $\pi \times 2.5^2$ Allow $\pi = 22/7$ or using calculator A1 Area =19.6 (cm <sup>2</sup> ) 2 marks for correct answer. 1 mark for 19.63.. Or 19.64...
1 (b) The cost of colours was Rs 200. Hurrem saved 30% on that price. How much did she spend on colours?	
Answer	Guidance
Rs 140	M1 $70/100 \times 200$ OR equivalent A1 Rs140

## Maths8BS4

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/Filename
Maths	8	Maths8BS4

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8BS4	1		N	8N2b Find integral powers and roots of positive whole numbers (squares, cubes and square roots and cube roots)	1

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses to estimating, approximating and working to appropriate levels of accuracy, and converting between equivalent numerical forms*

### Sources and diagrams

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### Question 4

- 1 A number ends in the digit 1. What could be the possible unit digit of the square root of that number?

- A. 1 or 9
- B. 3 or 6
- C. 6 or 9
- D. 7 or 9

(1 mark)

**(Total marks 1)**

## Mark scheme

<p>1 A number ends in the digit 1. What could be the possible unit digit of the square root of that number?</p> <p>A. 1 or 9 B. 3 or 6 C. 6 or 9 D. 7 or 9</p>	
Answer	Guidance
A. 1 or 9	8N2b (A) $1 \times 1 = 1$ $9 \times 9 = 81$ . 1 mark allow to correct answer.

## Maths8DG4

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8DG4

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8DG4a	1		E	8M4b Find the volume of cuboids and cylinders	1
Maths8DG4b		2	E	8M4a Find the surface area of cuboids and cylinders	2
<b>Total marks</b>	<b>1</b>	<b>2</b>			<b>3</b>

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

The question assesses the application of formula of volume and surface area of a cuboid

### Source(s)

Source information: book/journal, author, publisher, website link etc.

### Question(s)

1 Consider a Cuboid whose dimensions are:

Length = 2cm, breadth = 5 cm and height = 8 cm

1 (a) Find the volume of the cuboid with the given dimensions.

(1 mark)

1 (b) Find the surface area of the given cuboid which is open from the top.



(2 marks)

**(Total marks 3)**

### Mark scheme

1 (a) Find the volume of the cuboid with the given dimensions	
Answer	Guidance
80cm <sup>3</sup>	A1 Allow one mark for correct answer. Accept the answer with units only.
1 (b) Find the Surface area of the given cuboid which is open from the top.	
Answer	Guidance
122cm <sup>2</sup>	M1 $=2 \times 8(2+5)+2 \times 5$ OR equivalent A1 $112+10=122 \text{ cm}^2$ A2 Allow 2 marks for correct answer. Accept the answer with units only.

## Maths8PR5

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8PR5

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8PR5		1	C	8M4b Find the volume of cuboids and cylinders	1

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses finding the volume of a right circular cylinder.*

### Source(s)

Source information: book/journal, author, publisher, website link etc.

### Question(s)

- 1       $88 \text{ cm}^3$  of aluminium is drawn into a wire 2 mm in diameter. What will the length of the wire be, to the nearest metre?
- A. 28 m
  - B. 78 m
  - C. 84 m
  - D. 96 m

(1 mark)

**(Total marks 1)**

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## Mark scheme

1 88 cm <sup>3</sup> of aluminium is drawn into a wire 2 mm in diameter. What will the length of the wire be?  A. 28 m B. 78 m C. 84 m D. 96 m	
Answer	Guidance
A. 28 m	1 mark for correct answer

## Maths8PR6

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/Filename
Maths	8	Maths8PR6

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8PR6a	1		N	8N2a Identify multiples of simple numbers: divisibility by 2, 3, 4, 5, 6, 9 and 10	2
Maths8PR6b		2	N	8N2a Identify multiples of simple numbers: divisibility by 2, 3, 4, 5, 6, 9 and 10	2
<b>Total marks</b>	1	2			4

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses the divisibility rule of 9.*

### Source(s)

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Source information: book/journal, author, publisher, website link etc.

### Question(s)

1

1 (a) A three-digit number is  $65N$  is divisible by 9. What is the value of the digit  $N$ ?

(2 marks)

- 1 (b) David bought 171 litres of milk. He selected 9 orphanages near his locality and wants to distribute milk equally amongst them without leaving any milk. With the help of the divisibility rule, check whether equal division is possible or not. If possible, how much milk is distributed to each orphanage?

(1 marks)

**(Total marks 3)**

### Mark scheme

1 (a) A three-digit number is 65N is divisible by 9. What is the value of the digit N?	
Answer	Guidance
7	M! 6+5+a must total multiple of 9 A1 7 Allow 2 marks for correct answer only.
1 (b) David bought 171 litres of milk. He selected 9 orphanages near his locality and wants to distribute milk equally amongst them without leaving any milk. With the help of divisibility rule, check whether equal division is possible or not. If possible, how much milk is distributed to each orphanage?	
Answer	Guidance
19 litres	A1 possible, 19 litres each

## Maths8PN2

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8PN2

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8PN2	1		N	8N2a Identify multiples of simple numbers: divisibility by 2, 3, 4, 5, 6, 9 and 10	1

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

The question assesses divisibility by 2 and 5

### Source(s)

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### Question(s)

- 1 Which of the following is divisible by both 2 and 5?
- A. -48
  - B. 35
  - C. 50
  - D. 62

(1 mark)

**(Total marks 1)**

### Mark scheme

1 Which of the following is divisible by both 2 and 5?	
A. -48	
B. 35	
C. 50	
D. 62	
Answer	Guidance
C. 50	1 mark for correct answer

## Maths8NB3

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/Filename
Maths	8	Maths8NB3

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8NB3	1		N	8N2a Identify multiples of simple numbers: divisibility by 2, 3, 4, 5, 6, 9 and 10	1

\*C = Calculator required, N = Calculator not allowed , E = Either

### Item purpose

The question assesses the divisibility of a number by 3.

### Source(s)

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Source information: book/journal, author, publisher, website link etc.

### Question(s)

- 1 The 5 digit number 1234A leaves a remainder 1 when divided by 3. Find the least value of the digit A.

(1 mark)

**(Total mark 1)**

### Mark scheme

1 The 5 digit number 1234A leaves a remainder 1 when divided by 3. Find the least value of the digit A.	
Answer	Guidance
0	Allow one mark for correct answer only.

## Maths8PR6

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/Filename
Maths	8	Maths8PR6

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8PR6a	1		N	8N2a Identify multiples of simple numbers: divisibility by 2, 3, 4, 5, 6, 9 and 10	2
Maths8PR6b		2	N	8N2a Identify multiples of simple numbers: divisibility by 2, 3, 4, 5, 6, 9 and 10	2
<b>Total marks</b>	1	2			4

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses the divisibility rule of 9.*

### Source(s)

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Source information: book/journal, author, publisher, website link etc.

### Question(s)

1

1 (a) A three-digit number is 65N is divisible by 9. What is the value of the digit N?  
(2 marks)

1 (b) David bought 171 litres of milk. He selected 9 orphanages near his locality and wants to distribute milk equally amongst them without leaving any milk. With



the help of the divisibility rule, check whether equal division is possible or not. If possible, how much milk is distributed to each orphanage?

(1 marks)

**(Total marks 3)**

### Mark scheme

1 (a) A three-digit number is 65N is divisible by 9. What is the value of the digit N?	
Answer	Guidance
7	M! 6+5+a must total multiple of 9 A1 7 Allow 2 marks for correct answer only.
1 (b) David bought 171 litres of milk. He selected 9 orphanages near his locality and wants to distribute milk equally amongst them without leaving any milk. With the help of divisibility rule, check whether equal division is possible or not. If possible, how much milk is distributed to each orphanage?	
Answer	Guidance
19 litres	A1 possible, 19 litres each

## Maths8PR3

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8PR3

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8PR3	1		N	8M4b Find the volume of cuboids and cylinders	1

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses volume of cuboid.*

### Source(s)

Source information: book/journal, author, publisher, website link etc.

### Question(s)

- 1 The number of cuboids each measuring 3 cm × 6 cm × 9 cm that can be cut from a cuboid with dimensions 81 cm × 27 cm × 18 cm is?

- A. 343
- B. 340
- C. 243
- D. 342

(1 mark)

**(Total marks 1)**

## Mark scheme

1 The number of cuboids each measuring 3 cm × 6 cm × 9 cm that can be cut from a cuboid with dimensions 81 cm × 27 cm × 18 cm is? A. 243 B. 340 C. 342 D. 343	
Answer	Guidance
A. 243	1 mark for correct answer

## Maths8NB5

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8NB5

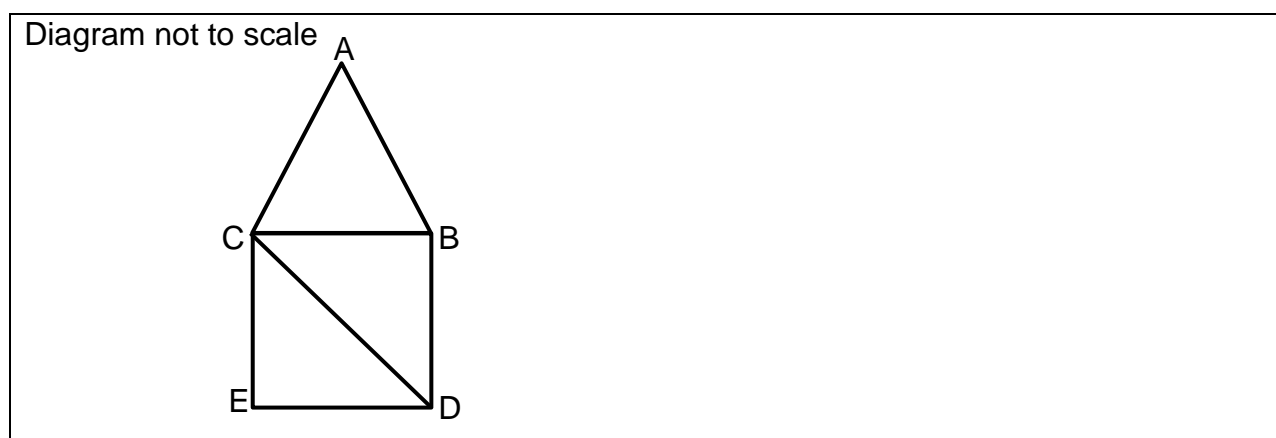
Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8NB5a		2	C	8G1a Identify and use properties of quadrilaterals (square, rectangle, parallelogram, trapezium)	2
Maths8NB5b		2	C	8N2b Find integral powers and roots of positive whole numbers (squares, cubes and square roots and cube roots)	2
<b>Total marks</b>		<b>4</b>			<b>4</b>

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

The question assesses the angle properties of square and equilateral triangle.

### Source(s)



Source information: Word Art

### Question(s)

1 ABC is an equilateral triangle on one side of the square CBDE.

1 (a) Find the measurement of angle ABD.

(2 marks)

1 (b) If the side of the square CBDE is 13cm , calculate the length of CD, up to two decimal places.

(2 marks)

**(Total marks 4)**

### Mark scheme

1 (a) Find the measurement of angle ABD.	
Answer	Guidance
150°	M1 60 +90 A1 150° Accept with or without degrees Allow 2 marks for correct answer only.
1 (b) If the side of the square CBDE is 13cm, calculate the length of CD, up to two decimal places.	
Answer	Guidance
18.38 cm	<b>M1</b> $\sqrt{169 + 169}$ Or equivalent OR $\sqrt{2} \times 13$ <b>A1</b> $CD = 1.41 \times 13 = 18.38$ cm Allow two marks for correct answer. Allow missing units.

## Maths8CN4

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	9	Maths8CN4

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8CN4	1		E	8G1a Identify and use properties of quadrilaterals: square, rectangle, parallelogram, trapezium	1

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses the knowledge of properties of quadrilaterals.*

### Question

- 1 If in a quadrilateral only one pair of opposite sides are parallel, then the quadrilateral is a \_\_\_\_\_
- A. Square
  - B. Rectangle
  - C. Trapezium
  - D. Rhombus

(1 mark)

**(Total mark 1)**

### Mark scheme

1.If in a quadrilateral only one pair of opposite sides are parallel, then the quadrilateral is a _____
A. Square
B. Rectangle
C. Trapezium



D. Rhombus	
Answer	Guidance
C. Trapezium	A1 For the correct answer Alternate answer to be accepted Trapezium

## Maths8BS3

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8BS3

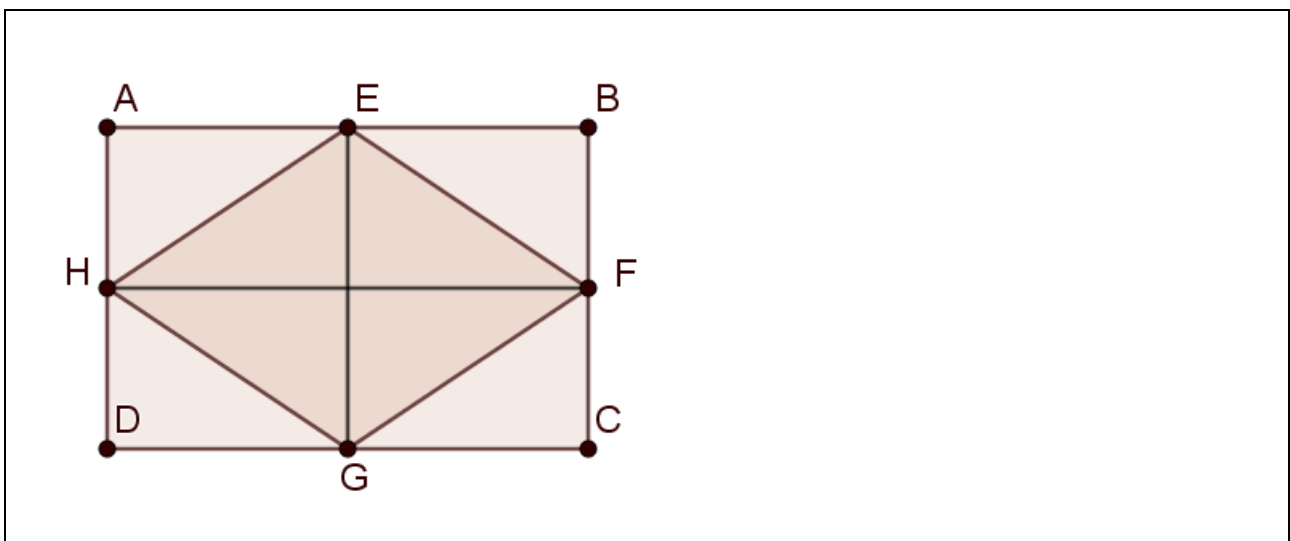
Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8BS3		1	N	8G4f Use the fact that: In a triangle, the line segment joining the mid points of any two sides is parallel to the third side and in half of it and (motivate) its converse.  8G1a Identify and use properties of quadrilaterals: square, rectangle, parallelogram, trapezium	1

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

The question assesses the knowledge of Quadrilaterals and the application of midpoint theorem.

### Sources and diagrams





## Question

1 ABCD is a rectangle and E,F,G,H are the midpoints AB,BC,CD and DA respectively.

Find the area of the Quadrilateral EFGH whose diagonals are 48cm and 32 cm

- A. 400 sq cm
- B. 560 sq cm
- C. 604 sq cm
- D. 768 sq cm

(1 mark)

**(Total mark 1)**

## Mark scheme

ABCD is a rectangle and E,F,G,H are the midpoints AB,BC,CD and DA respectively. Find the area of the Quadrilateral EFGH whose diagonals are 48cm and 32 cm  A. 400 sq cm B. 560 sq cm C. 604 sq cm D. 768 sq cm	
Answer	Guidance
D. 768 sq cm	A1: for correct answer

## Maths8AM7

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8AM7

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8AM7a	1		E	8G1b Draw and interpret 2D representations of 3D shapes	1
Maths8AM7b		2	E	8G1c Draw and interpret nets (cuboids, cubes, pyramids, prisms)	2
Maths8AM7c		2	E	8G1d Apply Euler's relation for Polyhedra ( $Faces + Vertices - Edges = 2$ )	2
<b>Total marks</b>	1	4			5

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

The question assesses if students can understand the 2D interpretation of 3D and also find the face, vertices and edge etc.

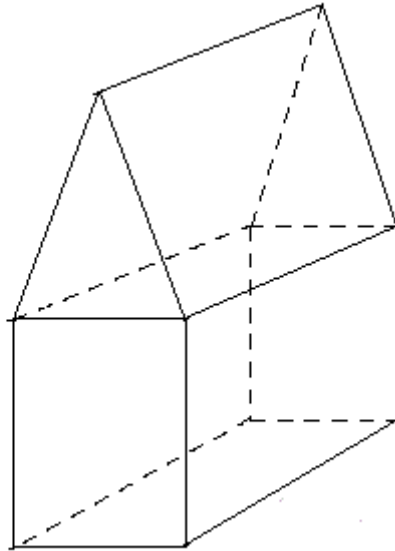
### Source(s)

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Source information: book/journal, author, publisher, website link etc.

## Question

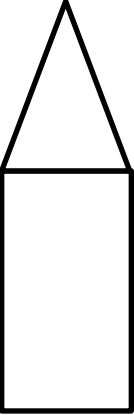
- 1 Amit made a model. He joined a cuboid and a prism together as shown below. The finished model has 7 faces and 10 vertices?

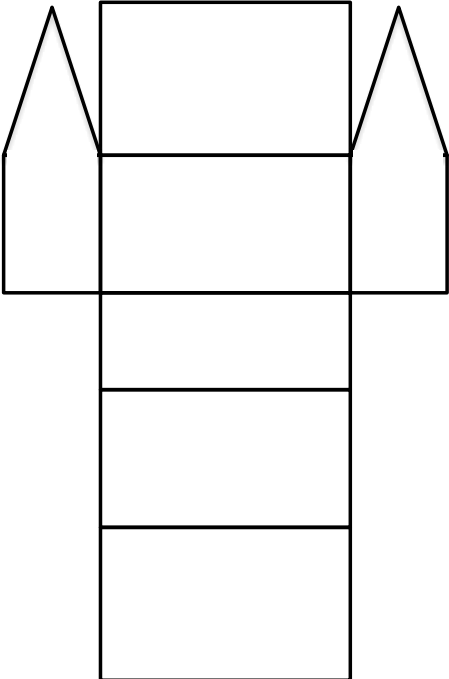


- 1(a) Draw the side view of the model from the end. (1 mark)
- 1(b) Draw the net of the completed model. (2 marks)
- 1(c) Apply Euler's relation to find the total number of edges the completed model has? Show your working. (2 mark)

**(Total mark 5)**

**Mark scheme**

1 (a) Draw the side view of this aquarium.	
Answer	Guidance
	<p>A1 combination of triangle and a rectangle.</p> <p>Mark can be given if size or shape is in approximation with the diagram.</p> <p>Allow the join between triangle and rectangle to be missing.</p>

1 (b) Draw the net of the triangular prism and cuboid used to construct the aquarium.	
Answer	Guidance
	<p>M1 drawing of a net that is made up of 5 rectangles and additional shapes</p> <p>A1 Any correct net</p> <p>Allow triangles and end rectangles to be shown as separate shapes</p>



1 (c) Apply Euler's relation to find the total number of edges the completed model has? Show your working.	
Answer	Guidance
15	M1 $7 + 10 - \text{edges} = 2$ OR $7 + 10 - 2$ A1 15 1 mark for answer only

## Maths8NB1

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8NB1

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8NB1	1		E	8G2a Apply the sum of the angles in a quadrilateral	1

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

The question assesses the application of angle sum property in a quadrilateral.

### Source(s)

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Source information: book/journal, author, publisher, website link etc.

### Question(s)

- 1 The measures of two angles of a quadrilateral are  $130^\circ$  and  $50^\circ$ . The remaining two angles are equal. Find the measure of each of the equal angles.

(1 mark)

**(Total marks 1)**

### Mark scheme

1 The measures of two angles of a quadrilateral are $130^\circ$ and $50^\circ$ . The remaining two angles are equal. Find the measure of each of the equal angles.	
Answer	Guidance

90°

Allow one mark for correct answer only.

Accept with or without degrees.

## Maths8PW7

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8PW7

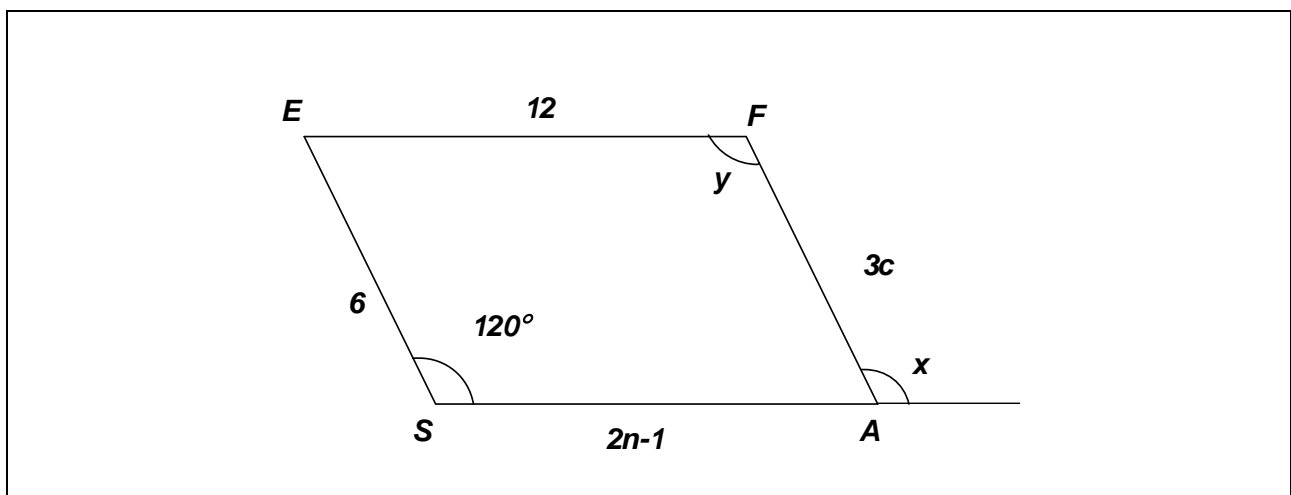
Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8PW7a	1		N	8G1a Identify and use properties of quadrilaterals: square, rectangle, parallelogram, trapezium	1
Maths8PW7b	1		N	8G2b Identify angle properties of parallelograms	1
Maths8PW7c		2	N	8G1a Identify and use properties of quadrilaterals: square, rectangle, parallelogram, trapezium	2
<b>Total marks</b>	<b>2</b>	<b>2</b>			<b>4</b>

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

The question assesses the properties of a parallelogram

### Source(s)





Source information: book/journal, author, publisher, website link etc.

### Question(s)

1 In the parallelogram SAFE given above  $\angle S = 120^\circ$

1 (a) Find the value of y

(1 mark)

1 (b) Find the value of x

(1 mark)

1 (c) Find the value of  $2n + 3c$

(2 marks)

**(Total marks 5)**

### Mark scheme

1 (a) Find the value of y	
Answer	Guidance
120°	A1 120° (opposite angles of parallelogram are equal $\angle S = \angle F = 120^\circ$ $y = 120^\circ$ )
1 (b) Find the value of x	
Answer	Guidance
$x = 120^\circ$	
1 (c) Find the value of $2n - 3c$	



Answer	Guidance
$2n + 3c = 19$	M1 Property used opposite sides of parallelogram are equal Either $2n - 1 = 12$ or $2n = 13$ OR $3c = 6$ OR $n = 6.5, c = 3$ A1 19

## Maths8PW4

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8PW4

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8PW4	1		N	8G1d Apply Euler's relation for polyhedra ( $Faces + Vertices - Edges = 2$ )	1

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses the application of Eulers Formula*

### Source(s)

Source information: book/journal, author, publisher, website link etc.

1 The number of edges of a prism is 9 and the number of vertices is three less than the number of edges. Apply Euler's Formula to find how many the faces the prism has.

- A. 2
- B. 4
- C. 5
- D. 9

(1 mark)

**(Total marks 1)**

---

## Mark scheme

1 The number of edges of a prism is 9 and the number of vertices is three less than the number of edges. Apply Euler's Formula to find how many the faces the prism has.	
Answer	Guidance
C. 5	1 mark for correct answer

## Maths8NB2

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8NB2

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8NB2	1		N	8G1d Apply Euler's relation for polyhedron ( $Faces + Vertices - Edges = 2$ )	1

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

The question assesses the application of Euler's relation for a polyhedron.

### Source(s)

--

Source information: book/journal, author, publisher, website link etc.

### Question(s)

- 1 A polyhedron has 10 edges and 6 vertices. How many faces does this polyhedron have?

(1 mark)

**(Total marks 1)**

### Mark scheme

1 A polyhedron has 10 edges and 6 vertices. How many faces does this polyhedron have?
---



Answer	Guidance
6	Allow one mark for correct answer only.

## Maths8DB3

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8DB3

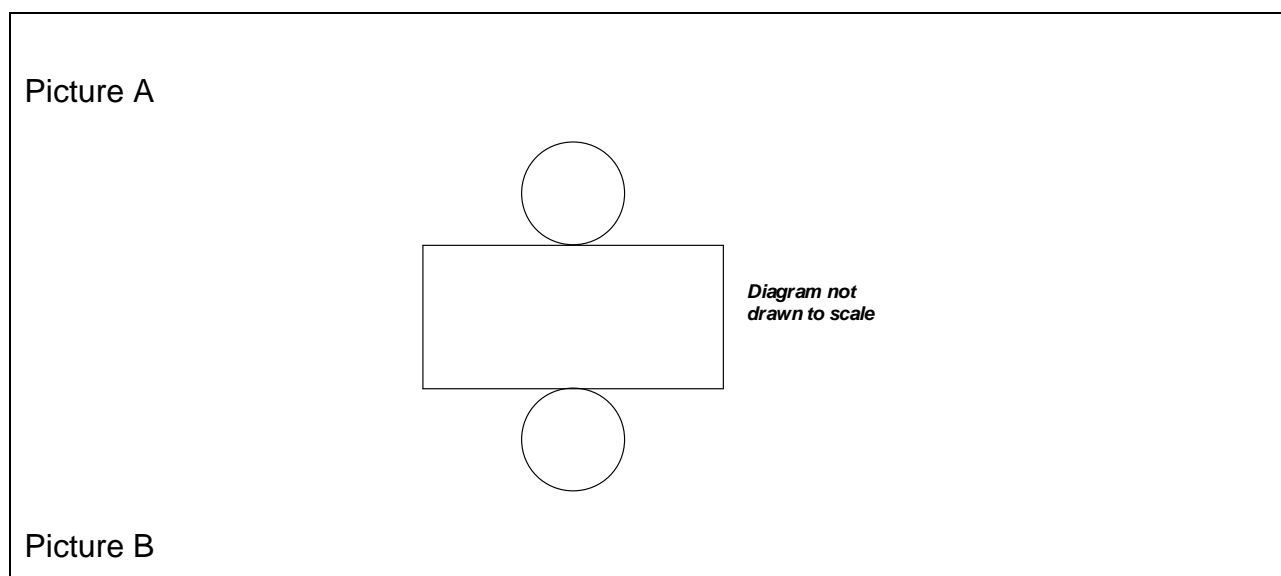
Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8DB3a	1		N	8G1b Draw and interpret 2D representations of 3D shapes	1
Maths8DB3b	1		N	8G1b Draw and interpret 2D representations of 3D shapes	1
Maths8DB3c	1		N	8G1b Draw and interpret 2D representations of 3D shapes	1
<b>Total marks</b>	<b>3</b>				<b>3</b>

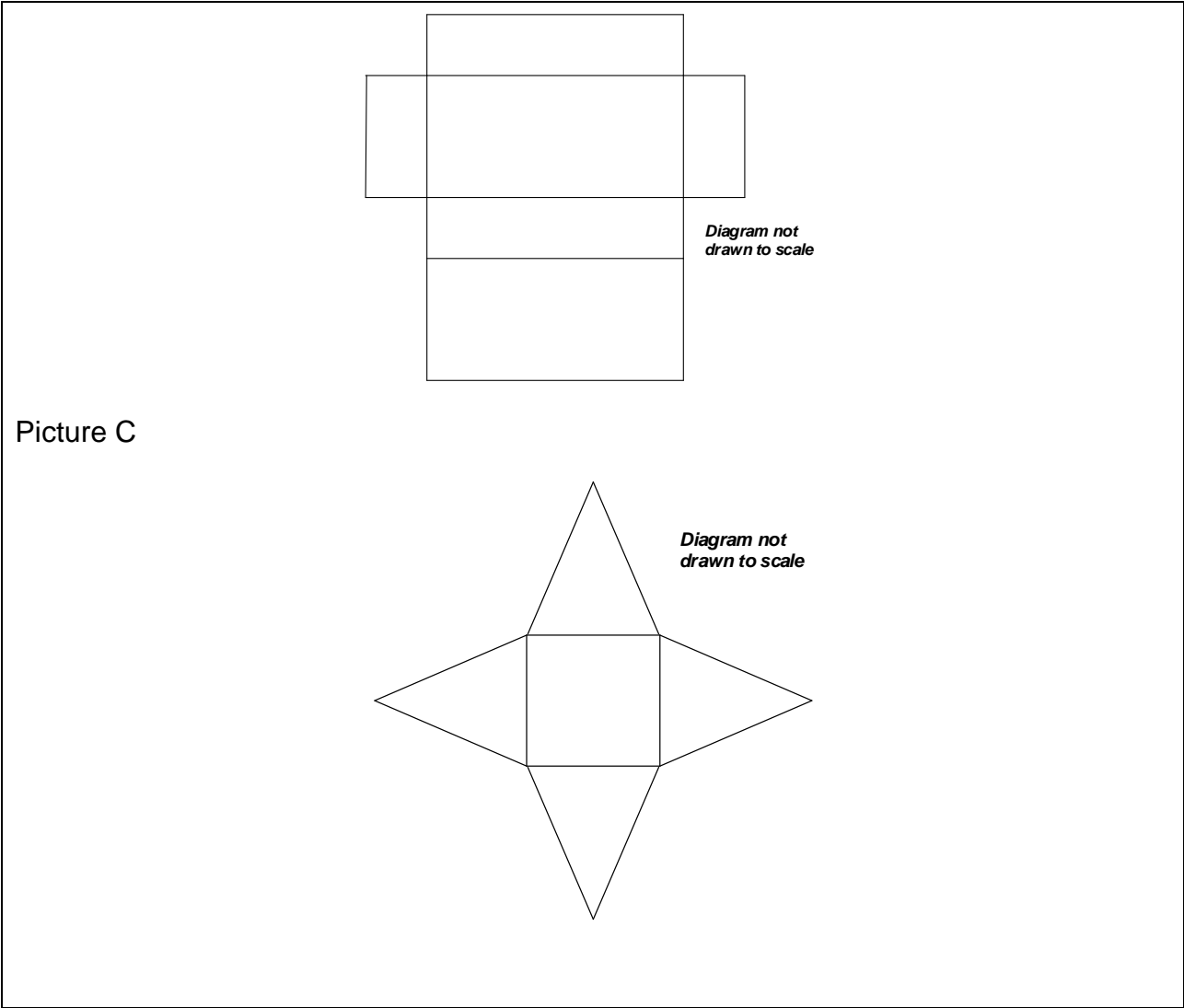
\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

The question assess the knowledge of identifying a 2D net of 3D object.

### Sources and diagrams





Source information if copied: book/journal, author, publisher, website link etc.

**Question**

- 1 Study the above pictures and answer the questions.
- 1(a) Identify the net given in picture A (1 mark)
- 1(b) Identify the net given in picture B (1 mark)
- 1(c) Identify the net given in picture C. (1 mark)

**(Total marks 3)**



## Mark scheme

1 (a) Identify the net given in picture A.	
Answer	Guidance
Cylinder	1 mark
1 (b) Identify the net given in picture B.	
Answer	Guidance
Cuboid	1 mark
1 (c) Identify the net given in picture C.	
Answer	Guidance
Square Bases Pyramid	1 mark Allow pyramid

## Maths8DB4

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8DB4

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8DB4		3	C	8M4a Find the surface area of cuboid and cylinders	3
<b>Total marks</b>		<b>3</b>			<b>3</b>

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assess the application knowledge of students in finding area of 3D.*

### Source(s)

--

Source information: book/journal, author, publisher, website link etc.

### Question

- 1 The internal measures of a cuboidal room are 12 m long, 8 m wide and 4 m high.  
Find the total cost of whitewashing all four walls of a room, if the cost of white washing is Rs 5 per m<sup>2</sup>.

(3 marks)

**(Total marks 3)**

## Mark scheme

1 The internal measures of a cuboidal room are 12 m long, 8 m wide and 4 m high. Find the total cost of whitewashing all four walls of a room, if the cost of white washing is Rs 5 per m <sup>2</sup> .	
Answer	Guidance
Rs. 800	M1 $4 \times 2(12+8)$ OR equivalent OR 160 seen M1 their $160 \times 5$ A1 Rs 800 Allow missing units

## Maths8AM1

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8AM1

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8AM1	1		N	8N2b Find integral powers and roots of positive whole numbers (squares, cubes and square roots and cube roots)	1

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*Understand the concept of number which cannot be a perfect square*

### Source(s)

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Source information: book/journal, author, publisher, website link etc.

### Question

- 1 Which of the following is not a perfect square?
- A. 49
  - B. 121
  - C. 178
  - D. 225

(1 mark)

**(Total mark 1)**

## Mark scheme

1 Which of the following cannot be a perfect square? (1 mark)	
B. 49 C. 121 D. 178 E. 225	
Answer	Guidance
C. 178	A1 The number ending with digits 2,3,7 or 8 can never be a perfect square.

## Maths8PN3

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8PN3

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8PN3	1		N	8N2b Find integral powers and roots of positive whole numbers (squares, cubes and square roots and cube roots)	1

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses cube roots*

### Source(s)

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### Question

1 What is the digit in unit position of the cube root of the cube number 3375?

- A. 7
- B. 2
- C. 4
- D. 5

(1 mark)

**(Total marks  
1)**

## Mark scheme

1 What is the digit in unit position of the cube root of the cube number 3375? A. 7 B. 2 C. 4 D. 5	
Answer	Guidance
D. 5	$5 \times 5 \times 5 = 125$ Allow marks for direct answers.

## Maths8BS4

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8BS4

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8BS4	1		N	8N2b Find integral powers and roots of positive whole numbers (squares, cubes and square roots and cube roots)	1

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses to estimating, approximating and working to appropriate levels of accuracy, and converting between equivalent numerical forms*

### Sources and diagrams

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### Question 4

- 1 A number ends in the digit 1. What could be the possible unit digit of the square root of that number?
- E. 1 or 9
  - F. 3 or 6
  - G. 6 or 9
  - H. 7 or 9

(1 mark)



(Total mark 1)

**Mark scheme**

A number ends in the digit 1. What could be the possible unit digit of the square root of that number?  A. 1 or 9 B. 3 or 6 C. 6 or 9 D. 7 or 9	
Answer	Guidance
1 or 9	8N2b (A) $1 \times 1 = 1$ $9 \times 9 = 81$ . 1 mark allow to correct answer.

## Maths8BS5

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8BS5

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8BS5	1		N	8N2b Find integral powers and roots of positive whole numbers (squares, cubes and square roots and cube roots)	1

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses to estimating, approximating and working to appropriate levels of accuracy, and converting between equivalent numerical forms*

### Source

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### Question 4

- 1 The number of zeroes at the end of the cube root of the cube number 8,000,000 is
- A. 1
  - B. 2
  - C. 5
  - D. 6

(1 mark)

**(Total mark 1)**

## Mark scheme

The number of zeroes at the end of the cube root of the cube number 8,000,000 is	
A. 1 B. 2 C. 5 D. 6	
Answer	Guidance
B. 2	8N2b (B) ∴ Number of zeroes at the end of the cube = 6 ∴ Number of zeroes at the end of the cube root = $6/3 = 2$ . 1 mark allow to correct answer.

## Maths8DB5

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8DB5

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8DB5	1		N	8N2b Find integral powers and roots of positive whole numbers (squares, cubes and square roots and cube roots)	1
<b>Total marks</b>	<b>1</b>				<b>1</b>

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assess the knowledge of identifying a square number.*

### Source(s)

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Source information: book/journal, author, publisher, website link etc.

### Question

1	<p>Which of the following is a square number</p> <p style="margin-left: 40px;">A. 144</p> <p style="margin-left: 40px;">B. 198</p> <p style="margin-left: 40px;">C. 200</p> <p style="margin-left: 40px;">D. 800</p> <p style="text-align: right;">(1 mark)</p> <p style="text-align: right;"><b>(Total mark 1)</b></p>
---	---



## Mark scheme

1 Which of the following is a square number A. 144 B. 198 C. 200 D. 800	
Answer	Guidance
144	1 mark

## Maths8DG3

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8DG3

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8DG3	1		N	8N2b Find integral powers and roots of positive whole numbers (squares, cubes and square roots and cube roots)	1

\*C = Calculator required, N = Calculator not allowed , E = Either

### Item purpose

*The question assesses the ability to find the square root by prime factorization of a positive whole number.*

Source(s)

--

Source information: book/journal, author, publisher, website link etc.

### Question(s)

1 Find the square root of 144.

(1 mark)

**(Total marks 1)**

---

## Mark scheme

1 Find the square root of 144.	
Answer	Guidance
12	Allow one mark for correct answer only.



## Maths8NB5

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8NB5

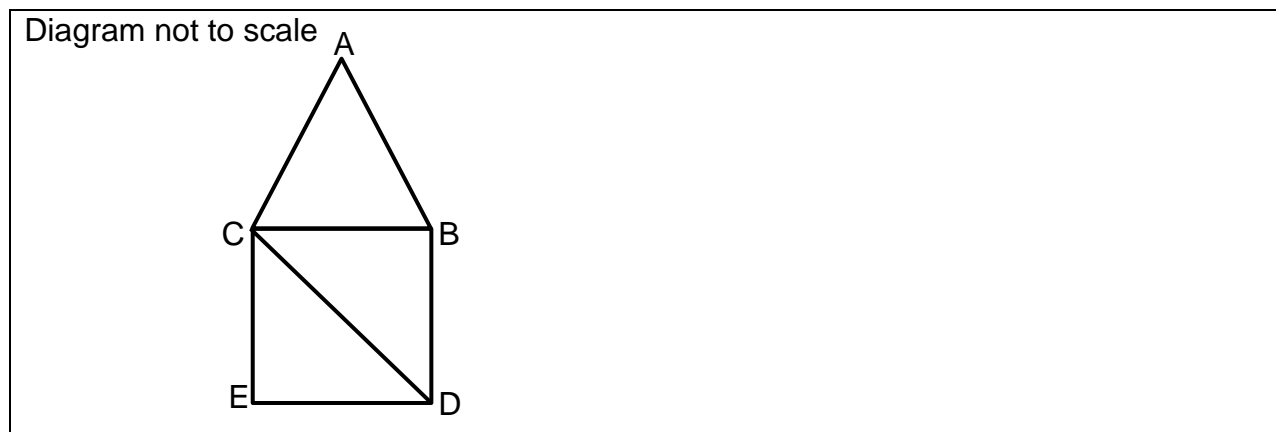
Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8NB5a		2	C	8G1a Identify and use properties of quadrilaterals (square, rectangle, parallelogram, trapezium)	2
Maths8NB5b		2	C	8N2b Find integral powers and roots of positive whole numbers (squares, cubes and square roots and cube roots)	2
<b>Total marks</b>		<b>4</b>			<b>4</b>

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

The question assesses the angle properties of square and equilateral triangle.

### Source(s)



Source information: Word Art

## Question(s)

1 ABC is an equilateral triangle on one side of the square CBDE.

1 (a) Find the measurement of angle ABD.

(2 marks)

1 (b) If the side of the square CBDE is 13cm , calculate the length of CD, up to two decimal places.

(2 marks)

**(Total marks 4)**

## Mark scheme

1 (a) Find the measurement of angle ABD.	
Answer	Guidance
150°	M1 60 +90 A1 150° Accept with or without degrees Allow 2 marks for correct answer only.
1 (b) If the side of the square CBDE is 13cm, calculate the length of CD, up to two decimal places.	
Answer	Guidance
18.38 cm	<b>M1</b> $\sqrt{169 + 169}$ Or equivalent OR $\sqrt{2} \times 13$ <b>A1</b> $CD = 1.41 \times 13 = 18.38$ cm Allow two marks for correct answer. Allow missing units.

## Maths8PW1

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8PW1

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8PW1	1		N	8N3a Use operations on rational numbers and note patterns	1

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses operations on rational numbers.*

### Source(s)

Source information: book/journal, author, publisher, website link etc.

### Question(s)

1 Find the product of the additive inverse of 3 and the multiplicative inverse of  $\frac{-3}{2}$

- A.  $\frac{-9}{2}$
- B.  $\frac{-1}{2}$
- C. 2
- D. -2

(1 mark)

**(Total marks 1)**

## Mark scheme

1 Find the sum of the additive inverse of 3 and the multiplicative inverse of $\frac{-3}{2}$	
A. $\frac{-9}{2}$	
B. $\frac{-1}{2}$	
C. 2	
D. -2	
Answer	Guidance
C. 2	1 mark for correct answer

## Maths8PN1

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8PN1

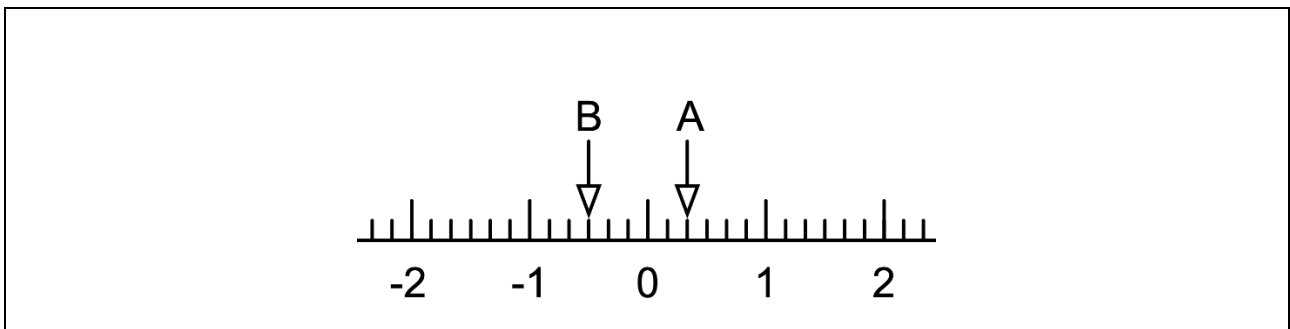
Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8PN1	1		N	8N3a Use operations on rational numbers and note patterns	2

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

The question assesses whether the child can apply the concept of rational numbers given a number line.

### Source(s)



### Question(s)

- 1 Observe the number line. What is the value of  $A - B$ ?
  - A.  $1/6$
  - B.  $-5/6$
  - C.  $-1/2$
  - D.  $-3/4$

(1 mark)

**(Total marks 1)**

## Mark scheme

1 Observe the number line. What is the value of A-B?  A. $\frac{1}{6}$ B. $-\frac{5}{6}$ C. $-\frac{1}{2}$ D. $-\frac{3}{4}$	
Answer	Guidance
B. $-\frac{5}{6}$	$A-B=-\frac{1}{3}-\frac{1}{2}=-\frac{5}{6}$ Allow marks for direct answers.

## Maths8PN6

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8PN6

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8PN6a	2		N	8N3a Use operations on rational numbers and note patterns	2
Maths8PN6b		2	N	8N3a Use operations on rational numbers and note patterns	2
<b>Total marks</b>	<b>2</b>	<b>2</b>			<b>4</b>

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses operations on rational numbers.*

### Source(s)

--

Source information: book/journal, author, publisher, website link etc.

### Question(s)

1

1 (a) What is the product of the reciprocal of  $\frac{5}{6}$  with the reciprocal of  $-\frac{8}{9}$ ?  
(2 marks)

1 (b) Find the missing number x in this equation. Give your answer in its simplest form.

$$\frac{5}{8} - x = \frac{3}{8} + \frac{9}{4}$$

(2 marks)

(Total marks 4)

Mark scheme

1 (a) What is the product of the reciprocal of $\frac{5}{6}$ with the reciprocal of $-\frac{8}{9}$ ?	
Answer:	Guidance: Reciprocals are: $\frac{6}{5}$ & $-\frac{9}{8}$
$-\frac{27}{20}$	M1: $\frac{6}{5} \times -\frac{9}{8}$ OR $-\frac{54}{40}$  A1= $-\frac{27}{20}$ OR $-1.35$ OR equivalent
1 (b) Find the missing number x in this equation. Give your answer in its simplest form. $\frac{5}{8} - x = \frac{3}{8} + \frac{9}{4}$	
Answer:	Guidance
$\frac{5}{2}$	M1: $(5-3+18)/8$  A1 $\frac{5}{2}$ OR $2.5$ OR equivalent



## Maths8PM3

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8PM3

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8PM3	1		N	8N3b Represent and order rational numbers on a number line	1

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses representation of rational numbers on number line.*

### Source(s)

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Source information: book/journal, author, publisher, website link etc.

### Question(s)

1 Represent the rational number  $-1/3$  on a number line.

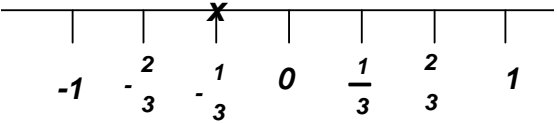
(1 mark)

**(Total mark 1)**

### Mark scheme

1 Represent the rational number $-1/3$ on the number line.	
Answer	Guidance



 <p>A number line with tick marks and labels: <math>-1</math>, <math>-\frac{2}{3}</math>, <math>-\frac{1}{3}</math>, <math>0</math>, <math>\frac{1}{3}</math>, <math>\frac{2}{3}</math>, <math>1</math>. An 'x' is marked above the <math>-\frac{1}{3}</math> tick mark.</p>	<p>A1 for the correct representation of the given rational number <math>(-1/3)</math> on number line. Allow any scale.</p>
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## Maths8PR1

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/Filename
Maths	8	Maths8PR1

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8PR1	1		N	8N3c Calculate using percentages, including profit, discount and sales tax	1

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses comparing quantities using percentage.*

### Source(s)

Source information: book/journal, author, publisher, website link etc.

### Question(s)

- 1 A bat is bought for Rs 200 and sold for Rs 300. What will the profit percentage be?
- A 20 %
  - B 33.3 %
  - C 50 %
  - D 100 %

(1 mark)

(Total marks 1)

**Mark scheme**

1 A bat is bought for Rs 200 and sold for Rs 300. What will the profit % be? A 20 % B 33.3 % C 50 % D 100 %	
Answer	Guidance
Answer is option C 50 %	Award 1 mark for correct answer only

## Maths8PW6

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8PW6

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8PW6a	1		N	8N3c Calculate using percentages, including profit, discount and sales tax	1
Maths8PW6b		3	N	8N3c Calculate using percentages, including profit, discount and sales tax	3
<b>Total marks</b>	1	3			4

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses the concept of profit and percentages and the application of the concept of ratio.*

### Source(s)

--

Source information: book/journal, author, publisher, website link etc.

### Question(s)

- 1 The Indian Government purchased 2,500 handmade masks for Rs 25,000 to give employment to women workers in remote areas during the pandemic.

1 (a) Out of total 2500 masks, 500 were donated to health workers and the rest of the masks were sold for Rs 40,000. Find the profit or loss percentage.

(1 mark)

1 (b) If health workers used 25% of the donated masks for COVID positive patients, how many masks were left for their usage? Find the ratio of masks used by patients to the masks used by health workers.

(3 marks)

**(Total marks 4)**

### Mark scheme

1 (a) Out of total 2500 masks,500 were donated to health workers and the rest of the masks were sold for Rs 40000 at a rate of Rs 20 per mask.. Find the profit or loss percentage	
Answer	Guidance
60%	M1 $15000 / 25000 \times 100$ OR equivalent A1 60% 2 marks answer only
1 (b) If health workers used 25% of the donated masks for COVID positive patients, how many masks were left for their usage? Find the ratio of masks used by patients to the masks used by health workers	
Answer	Guidance
375 1: 3	M1 $75 / 100 \times 500$ A1 375 A1 Ratio 1: 3 answer only Allow 3:1

## Maths8DG2

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8DG2

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8DG2		1	E	8N3c Calculate using percentages, including profit, discount and sales tax.	1

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses the application of concept of percentage.*

### Source(s)

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Source information: book/journal, author, publisher, website link etc.

### Question(s)

- 1 8% of children in a class of 25 like getting wet in the rain. How many children do not like getting wet in the rain?

(1 mark)

**(Total mark 1)**

### Mark scheme

1 8% of children in a class of 25 like getting wet in the rain. How many children do not like getting wet in the rain?	
Answer	Guidance
23 students who do not like getting wet.	Allow one mark for the correct answer only.

## Maths8DG5

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8DG5

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8DG5 a		1	E	8N3c Calculate using percentages, including profit, discount and sales tax	1
Maths8DG5 b		2	E	8N3d Calculate compound interest using an annual or semi-annual rate and up to 3 time periods	2
<b>Total marks</b>		<b>3</b>			<b>3</b>

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

The question assesses the concept of percentage in profit, for example finds profit percentage when the cost price is given and also in compound interest too.

### Source(s)

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Source information: book/journal, author, publisher, website link etc.

### Question(s)

- 1 A shopkeeper earns his livelihood by selling apples. At the end of the year he saves the profit earned in the bank on compound interest.
  - 1 (a) Suppose the shopkeeper has bought 1 kg of apples for Rs 100 and sold it for Rs120 per kg Calculate the percentage of the profit gained by the shopkeeper.

(1 mark)



1 (b) Calculate the compound interest on his savings of Rs 8,000 for one year at 16% per annum, compounded half yearly.

(2 marks)

**(Total marks 3)**

### Mark scheme

1(a) Suppose the shopkeeper has bought 1 kg of apples for Rs.100 and sold it for Rs 120 per kg Calculate the percentage of the profit gained by the shopkeeper.	
Answer	Guidance
20%	A1 20 % Allow mark for no percent sign
1 (b) Calculate the compound interest on his savings of Rs 8,000 for one year at 16% per annum, compounded half yearly.	
Answer	Guidance
Rs 1331.20	M1 $8000(1+.08)^2 - 8000$ OR equivalent using two stages A1 Rs1331.20 Answer only 2 marks Accept no Rs symbol

## Maths8PR4

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8PR4

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8PR4	1		N	8N4a Use direct and inverse proportion in simple word problems, including time and work contexts	1

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses direct and inverse variation*

### Source(s)

Source information: book/journal, author, publisher, website link etc.

### Question(s)

- 1 Trains A, B and C move at speeds of 15 km/h, 20 km/h and 10km/h respectively. They leave same station at the same time. If they have to reach the same place, which train will arrive first?

- A. Train A
- B. Train B
- C. Train C
- D. All the trains will arrive at the same time

(1 mark)

**(Total marks 1)**

## Mark scheme

<p>1 Trains A, B and C move at speeds of 15 km/h, 20 km/h and 10km/h respectively. They leave same station at the same time. If they have to reach the same place, which train will arrive first?</p> <p>A. Train A B. Train B C. Train C D. All the trains will arrive at the same time</p>	
Answer	Guidance
B.Train B	1 mark for correct answer

## Maths8PW5

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8PW5

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8PW5	1		N	8N4a Use direct and inverse proportion in simple word problems, including time and work contexts.	1

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses the use of direct and inverse proportion.*

### Source(s)

--

Source information: book/journal, author, publisher, website link etc.

### Question(s)

- 1 If 15 workers can make a batch of masks in 12 days, how many workers will do the same work in 6 days?
- A. 12
  - B. 24
  - C. 30
  - D. 42

(1 mark)

**(Total mark 1)**

## Mark scheme

1 If 15 workers can make a batch of masks in 12 days, how many workers will do the same work in 6 days?  A. 12 B. 24 C. 30 D. 42	
Answer	Guidance
C. 30	1 mark for correct answer

## Maths8DG6

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/Filename
Maths	VIII	Maths8DG6

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8DG6a	2		C	8M2c Find the area of a circle	2
Maths8DG6b		2	C	8N3c Calculate using percentages, including profit, discount and sales tax.	2
<b>Total marks</b>	<b>2</b>	<b>2</b>			<b>4</b>

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

The question assesses the application of formula of area of a circle, calculating using percentages including discount and finding area of a polygon.

### Source(s)

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Source information: book/journal, author, publisher, website link etc.

### Question(s)

1 Hurrem's Maths teacher asked her to make a beautiful wheel using a circle with a radius of 2.5 cm.

1 (a) What is the area of the circle? Give your answer correct to 1 decimal place.

(2 marks)

1 (b) The cost of colours was Rs 200. Hurrem saved 30% on that price. How much did she spend on colours?

(2 marks)

**(Total marks 4)**

### Mark scheme

1(a) What is the area of the circle? Give your answer correct to 1 decimal place.	
Answer	Guidance
Area =19.6cm <sup>2</sup>	M1 $\pi \times 2.5^2$ Allow $\pi = 22/7$ or using calculator A1 Area =19.6 (cm <sup>2</sup> ) 2 marks for correct answer. 1 mark for 19.63.. Or 19.64...
1 (b) The cost of colours was Rs 200. Hurrem saved 30% on that price. How much did she spend on colours?	
Answer	Guidance
Rs 140	M1 $70/100 \times 200$ OR equivalent A1 Rs140

## Maths8NB6

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/Filename
Maths	8	Maths8NB6

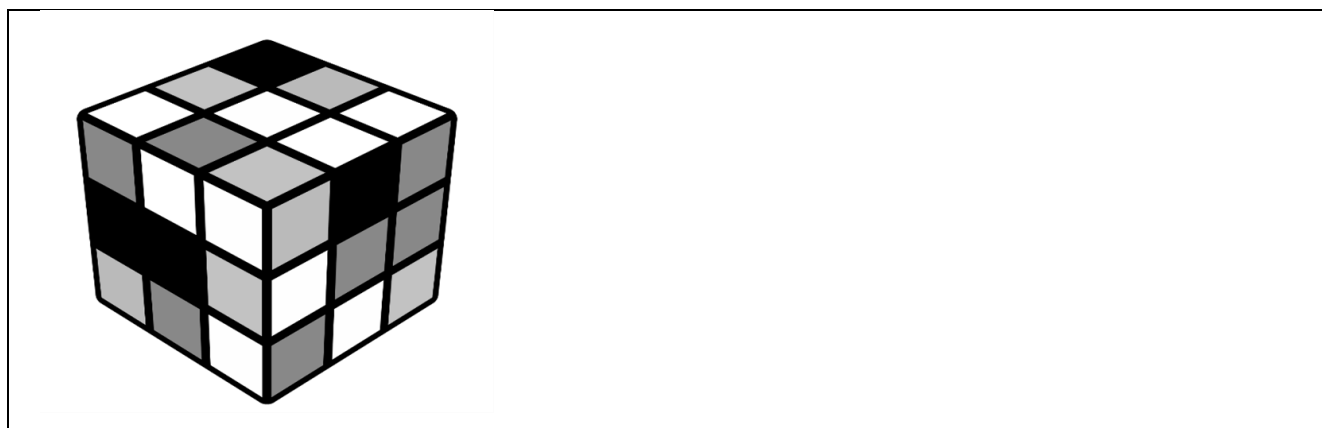
Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8NB6a	1		C	8N4a Use direct and inverse proportion in simple word problems, including time and work contexts.	1
Maths8NB6b		2	C	8N3c Calculate using percentages, including profit, discount and sales tax.	2
Maths8NB6c	2		E	8G1c Draw and interpret nets (cuboids, cubes, pyramids, prisms)	2
<b>Total marks</b>	<b>3</b>	<b>2</b>			<b>5</b>

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

The question assesses the use of direct proportion in simple word problems, calculating using percentages including discount and drawing the net of a cube.

### Source(s)





**Question(s)**

1 Ahana’s birthday is approaching, so she decides to celebrate it and give Rubik cubes as return gifts to her friends.

1 (a) She has 25 friends, and the cost of each Rubik cube is Rs 65. What is the total amount she spends?

(1 mark)

1 (b) When she reaches the shop, she finds the shopkeeper is giving a 20% discount on all the items. Find the cost of each cube after the discount.

(2 marks)

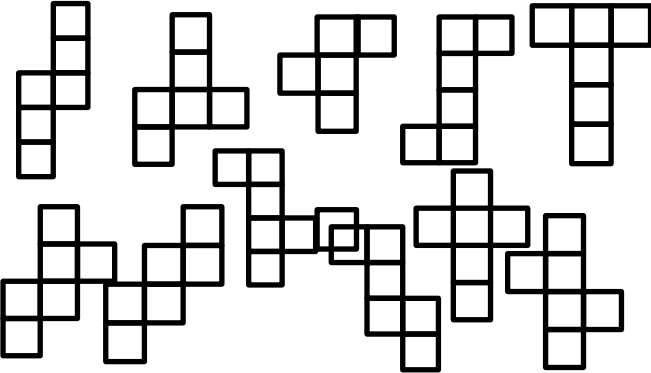
1 (c) Draw the net of a cube.

(2 marks)

**(Total marks 5)**

**Mark scheme**

1 (a) She has 25 friends, and the cost of each Rubik cube is Rs 65. What is the total amount she spends?	
Answer	Guidance
Rs 1625	Allow one mark for correct answer only. Allow missing units
1 (b) When she reaches the shop, she finds the shopkeeper is giving a 20% discount on all the items. Find the cost of each cube after the discount.	

Answer	Guidance
Rs 52	M1 80 / 100 x 65 OR equivalent A1 Rs 52 Allow missing units
1 (c) Draw the net of a Cube.	
Answer	Guidance
<p>11 nets for a cube</p> 	<p>M1 6 connected squares</p> <p>A1 Correct drawing only</p> <p>Full marks for correct answer</p>

## Maths8PN7

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8PN7

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8PN7		3	N	8S1a Represent data in grouped intervals	2

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses data handling concepts.*

### Source(s)

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### Question

- 1 A bag contains 144 coloured balls. 12 are red, 18 are yellow, 28 are blue, 42 are green. Draw a pie chart to show this information.

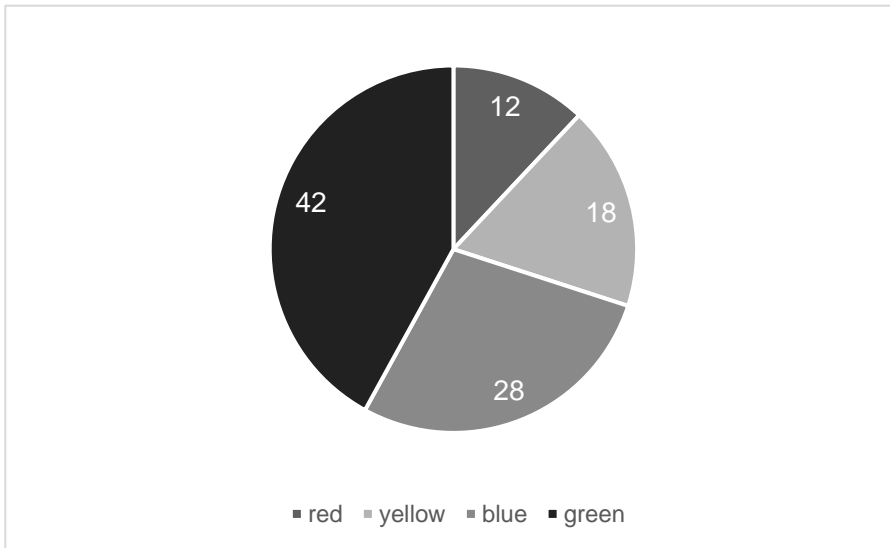
(3 marks)

**(Total marks 3)**

## Mark scheme

A bag contains 144 coloured balls. 12 are red, 18 are yellow, 28 are blue, 42 are green. Draw a pie chart to show this information.

Answer



Guidance

Central angle:  
given

$\text{number/total} * 360$

Red-30°

Yellow-45°

Blue-70°

Green-105°.

White-110°

Allow two marks  
for finding out the  
central angle of  
the observations.

Allow one mark to  
draw the pie  
chart.

## Maths9PN5

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths9PN5

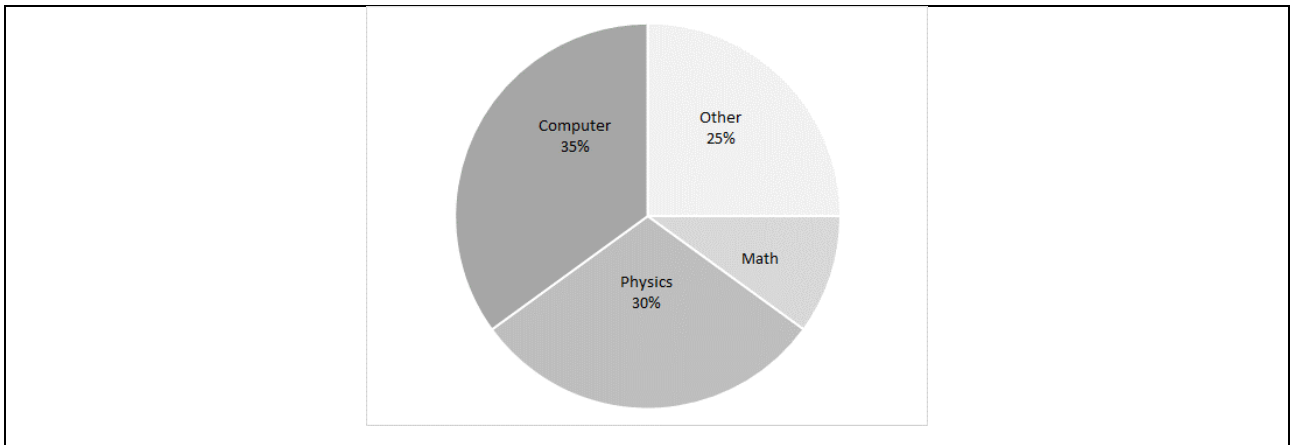
Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths9PN5	1		N	8S2a Draw and interpret bar charts, and pie charts for simple data	1

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses interpretation of pie charts.*

### Source(s)



### Question(s)

- 1 The pie chart above shows the number of pupils taking other subjects in a science class.

What angle represents math?

(2 marks)  
**(Total marks 2)**

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## Mark scheme

1 What angle represents math?	
Answer	Guidance
36 degrees	M1 $360 \times (100 - 90)/100$ OR equivalent A1 36 degrees

## Maths8PM4

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	VIII	Maths8PM4

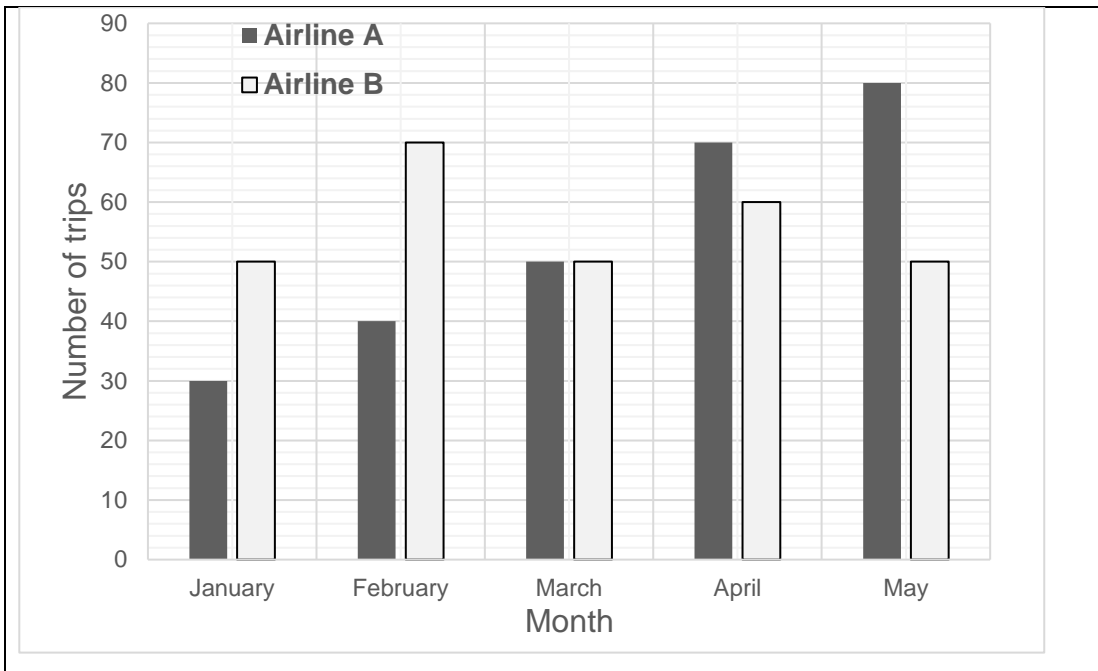
Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8PM4a	1		N	8S2a Draw and interpret bar charts and pie charts for simple data.	1
Maths8PM4b	1		N	8S2a Draw and interpret bar charts and pie charts for simple data.	1
Maths8PM4c	2		N	8S2a Draw and interpret bar charts and pie charts for simple data.	2
Maths8PM4d		2	N	8S2a Draw and interpret bar charts and pie charts for simple data.	2
<b>Total marks</b>	<b>4</b>	<b>3</b>			<b>7</b>

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses interpreting bar charts for simple data.*

## Source(s)



Source information: book/journal, author, publisher, website link etc.

## Question(s)

1 The double bar graph above shows the number of trips made to London from Mumbai by two airlines A and B.

1 (a) In which month did Airline A made the most trips and how many trips did it make?

(1  
mark)

1 (b) In which month were the number of trips by both the airlines same?

(1 mark)

1 (c) Find the total number of trips made by Airline B from February to April

(2 marks)

1 (d) Calculate the average number of trips per month trips for Airline A.

(2 marks)

**(Total marks 6)**



## Mark scheme

1 (a) In which month did Airline A made the most trips and how many trips did it make?	
Answer	Guidance
May; 80 trips	A1 both May and 80. No half marks
1 (b) In which month were the number of trips by both the airlines same?	
Answer	Guidance
March	A1 March.
1 (c) Find the total number of trips made by Airline B from February to April.	
Answer	Guidance
180	M1 70+50+60 A1 180
1 (d) Calculate the average number of trips per month trips for Airline A.	
Answer	Guidance
Average trips of A = 54	M1 – Average trips of A = $(30+40+50+70+80)/5$ A1 54

## Maths8PM2

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8PM2

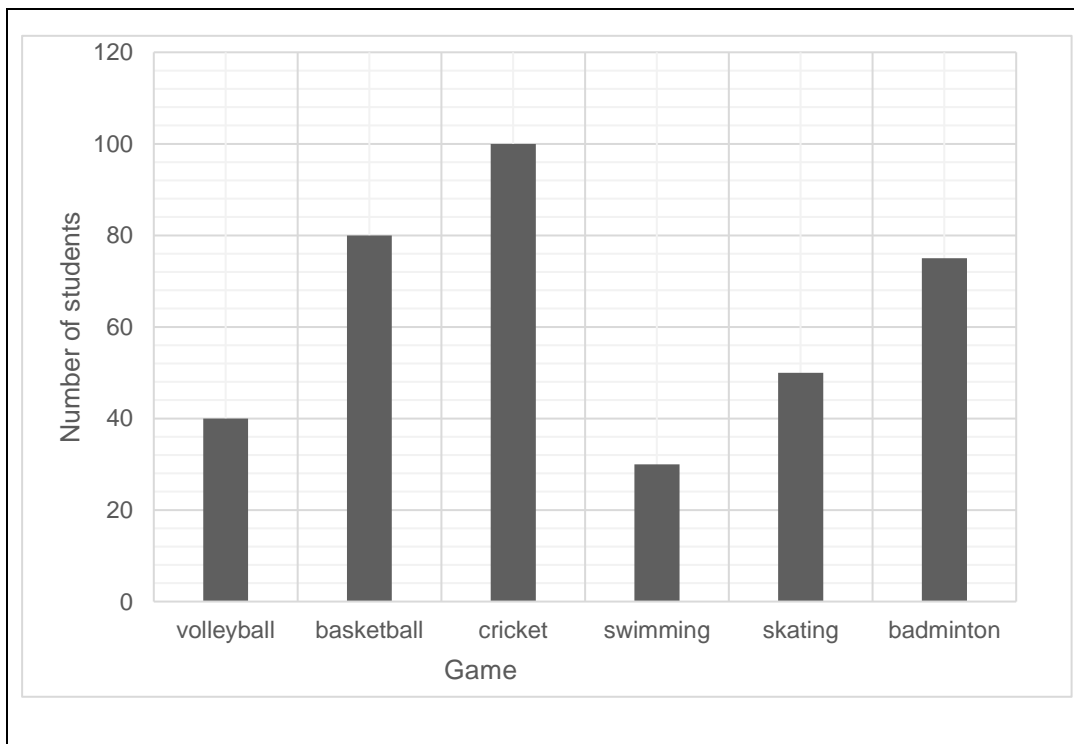
Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8PM2		2	N	8S2a Draw and interpret bar charts and pie charts for simple data	2

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses interpretation of data from bar chart*

### Source(s)



Source information: Excel

### Question(s)

1 The bar graph represents the number of students playing different sports in a school.

Find the ratio of the number of students playing volleyball to the number of students playing cricket.

(2 marks)

**(Total marks 2)**

### Mark scheme

1 The bar graph represents the number of students playing different sports in a school.  Find the ratio of the number of students playing volleyball to the number of students playing cricket. Give your answer in simplest form.	
Answer	Guidance
2 : 5	M1 Volleyball = 40 AND Cricket = 100  OR Ratio = 40 : 100  A1 = 2 : 5  1 mark for 5 : 2

## Maths8PN4

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8PN4

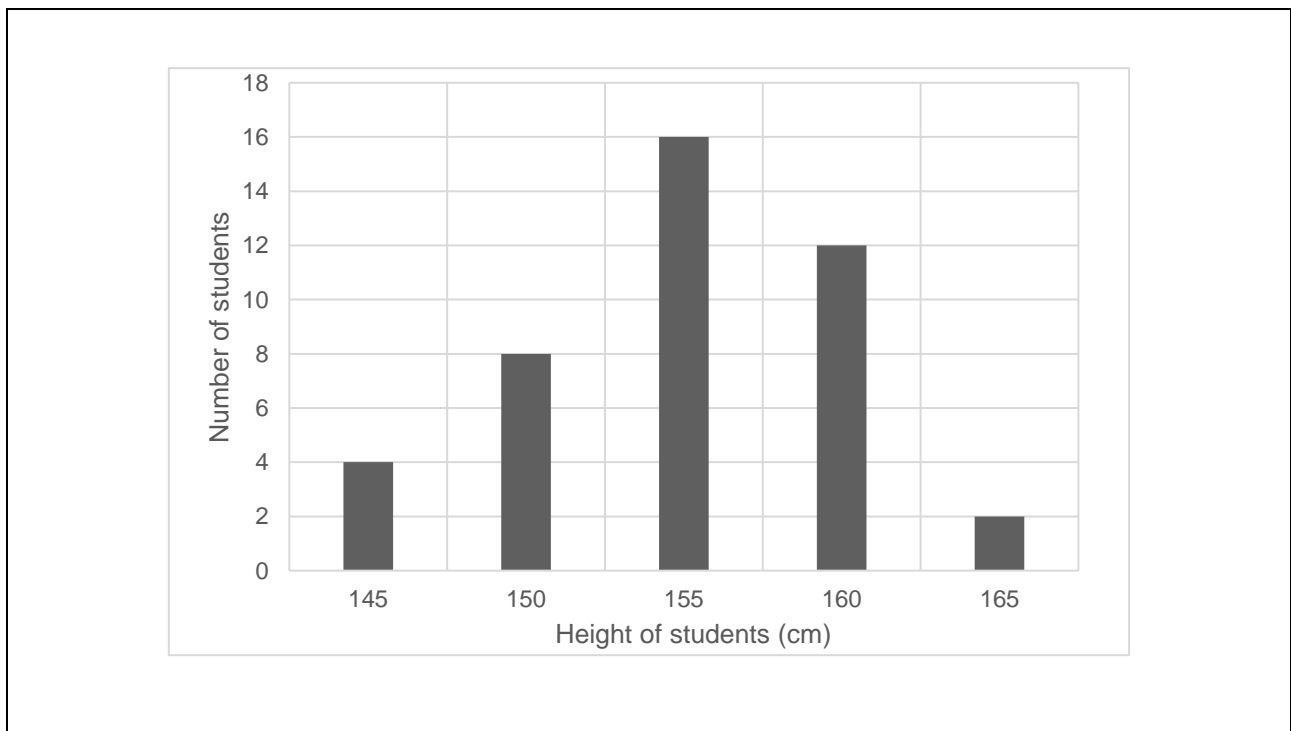
Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8PN4	1		E	8S2a Draw and interpret bar charts, and pie charts for simple data	1

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses interpretation of a graph*

### Source(s)



## Question(s)

- 1 The histogram above shows the heights of 42 students in a class. How many students have height less than 160 cm?
- A. 12
  - B. 16
  - C. 28
  - D. 40

(1 mark)

**(Total marks1)**

## Mark scheme

1 The histogram above shows the heights of 42 students in a class. How many students have height less than 160 cm?	
A. 12 B. 16 C. 28 D. 40	
Answer	Guidance
C 28	ADD:16+8+4=28 Allow marks for direct answers.

## Maths8PW6

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8PW6

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8PW6a	1		N	8N3c Calculate using percentages, including profit, discount and sales tax	1
Maths8PW6b		3	N	8N3c Calculate using percentages, including profit, discount and sales tax	3
<b>Total marks</b>	<b>1</b>	<b>3</b>			<b>4</b>

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses the concept of profit and percentages and the application of the concept of ratio.*

### Source(s)

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Source information: book/journal, author, publisher, website link etc.

### Question(s)

- 1 The Indian Government purchased 2,500 handmade masks for Rs 25,000 to give employment to women workers in remote areas during the pandemic.

1 (a) Out of total 2500 masks, 500 were donated to health workers and the rest of the masks were sold for Rs 40,000. Find the profit or loss percentage.

(1 mark)

1 (b)

If health workers used 25% of the donated masks for COVID positive patients, how many masks were left for their usage? Find the ratio of masks used by patients to the masks used by health workers.

(3 marks)

**(Total marks 4)**

### Mark scheme

1 (a) Out of total 2500 masks,500 were donated to health workers and the rest of the masks were sold for Rs 40000 at a rate of Rs 20 per mask.. Find the profit or loss percentage	
Answer	Guidance
60%	M1 $15000 / 25000 \times 100$ OR equivalent A1 60% 2 marks answer only
1 (b) If health workers used 25% of the donated masks for COVID positive patients, how many masks were left for their usage? Find the ratio of masks used by patients to the masks used by health workers	
Answer	Guidance
375 1: 3	M1 $75 / 100 \times 500$ A1 375 A1 Ratio 1: 3 answer only Allow 3:1

## Maths8BS7

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/Filename
Maths	8	Maths8BS7

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8BS7		3	N	8N3c Calculate using percentages, including profit, discount and sales tax	3
<b>Total marks</b>		<b>3</b>			<b>3</b>

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses that they will be able to understand the interpretation of percentage.*

### Sources and diagrams

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### Question

- 1 Green Valley Society Association built a sports club to encourage sporting activities among all residents. 20% of the members play football, 25% play hockey, 40% play cricket and the rest play indoor games. 18 members play indoor games.

How many members are there in the sports club?

(3 marks)

**(Total mark 3)**



## Mark scheme

<p>Green Valley Society Association built a sports club to encourage sporting activities among all residents. 20% of the members play football, 25% play hockey, 40% play cricket and the rest play indoor games. 18 members play indoor games.</p> <p>How many members are there in the sports club?</p>	
Answer	Guidance
120	M1 Percentage indoor games $100 - (20 + 25 + 40)$ OR 15% seen M1 Total = $18 \times 100 / \text{their } 15$ A1 120

## Maths8PM5

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/Filename
Maths	8	Maths8PM5

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8PM5a	2		C	8N3d Calculate compound interest using an annual or semi-annual rate and up to 3 time periods.	2
Maths8PM5b	2		C	8N3d Calculate compound interest using an annual or semi-annual rate and up to 3 time periods.	2
<b>Total marks</b>	<b>4</b>				<b>4</b>

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

The question assesses calculation of compound interest using an annual and semi-annual rate.

### Source(s)

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Source information: book/journal, author, publisher, website link etc.

### Question(s)

1 Selena lent a sum of rupees 10,000 to Peter at 10% per annum interest compounded annually for 2 years, and the same amount to John at 10% per annum interest compounded half yearly for 2 years

1 (a) Find the compound interest received by Selena from Peter at the end of 2 years.

(2 marks)

- 1 (b) Find the compound interest received by Selena from John at the end of 2 years.  
Give your answer correct to 2 decimal places.

(2 marks)

**(Total marks 5)**

### Mark scheme

1 (a) Find the compound interest received by Selena from Peter at the end of 2 years.	
Answer	Guidance
2100	M110000 - 10,000 x $(11/10)^2$ OR equivalent A Rs 2100 Allow missing units
1 (b) Find the compound interest received by Selena from John at the end of 2 years. Give your answer correct to 2 decimal places.	
Answer	Guidance
2155.06	M1 10000 - 10000 x $(21/20)^4$ OR equivalent A Rs 2155.06 Allow 2155.0625

## Maths8DG5

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8DG5

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8DG5 a		1	E	8N3c Calculate using percentages, including profit, discount and sales tax	1
Maths8DG5 b		2	E	8N3d Calculate compound interest using an annual or semi-annual rate and up to 3 time periods	2
<b>Total marks</b>		<b>3</b>			<b>3</b>

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

The question assesses the concept of percentage in profit, for example finds profit percentage when the cost price is given and also in compound interest too.

### Source(s)

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Source information: book/journal, author, publisher, website link etc.

### Question(s)

- 1 A shopkeeper earns his livelihood by selling apples. At the end of the year he saves the profit earned in the bank on compound interest.
- 1 (a) Suppose the shopkeeper has bought 1 kg of apples for Rs 100 and sold it for Rs120 per kg Calculate the percentage of the profit gained by the shopkeeper.

(1 mark)

1 (b) Calculate the compound interest on his savings of Rs 8,000 for one year at 16% per annum, compounded half yearly.

(2 marks)

**(Total marks 3)**

### Mark scheme

1(a) Suppose the shopkeeper has bought 1 kg of apples for Rs.100 and sold it for Rs 120 per kg Calculate the percentage of the profit gained by the shopkeeper.	
Answer	Guidance
20%	A1 20 % Allow mark for no percent sign
1 (b) Calculate the compound interest on his savings of Rs 8,000 for one year at 16% per annum, compounded half yearly.	
Answer	Guidance
Rs 1331.20	M1 $8000(1+.08)^2 - 8000$ OR equivalent using two stages A1 Rs1331.20 Answer only 2 marks Accept no Rs symbol

## Maths8AM5

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8AM5

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8AM5	1		N	8S3a Estimate probability of an event based on outcomes of equally likely events	1

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses the ability to understand the concept of probability*

### Source(s)

Source information: book/journal, author, publisher, website link etc.

### Question

- 1 A bag contains 5 yellow mangos and 5 green mangos. What is the probability of getting a yellow mango randomly?

- A.  $\frac{1}{10}$
- B.  $\frac{1}{5}$
- C.  $\frac{1}{2}$
- D. 1

(1 mark)

**(Total mark 1)**

## Mark scheme

1 . A bag contains 5 yellow mangos and 5 green mangos. What is the probability of getting a yellow mango randomly?	
A. $\frac{1}{10}$ B. $\frac{1}{5}$ C. $\frac{1}{2}$ D. 1	
Answer	Guidance
C. $\frac{1}{2}$	A1 probability = $\frac{5}{10} = \frac{1}{2}$

## Maths8AM6

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	8	Maths8AM6

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8AM6 a	2		N	8S2a Draw and interpret bar charts, and pie charts for simple data	2
Maths8AM6 b	2		N	8S2a Draw and interpret bar charts, and pie charts for simple data	2
<b>Total marks</b>	4				4

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses if students can draw and interpret bar charts properly.*

### Source(s)

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Source information: book/journal, author, publisher, website link etc.

### Question

- 1 The following data shows the percentage of people of different ages registered for a COVID-19 vaccination.

Age in years	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90-94	95-99	100-104
--------------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	---------



% of people	80	60	75	85	50	65	75	80	70	25	20	10
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1(a)

Present the above information on a bar graph.

(2 mark)

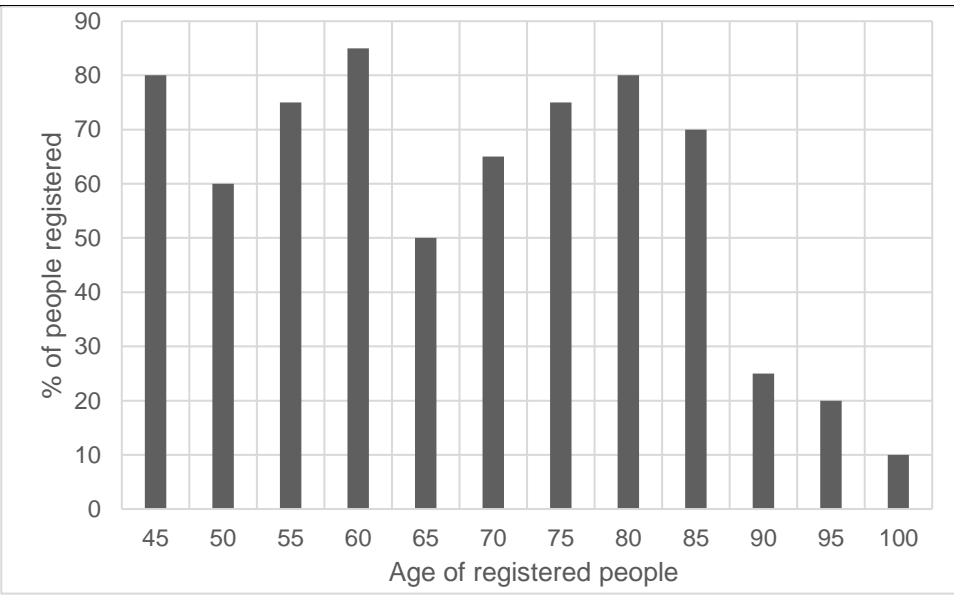
(b)

Find the difference in the percentage of the age group registered most and list from the graph.

(2 mark)

**(Total mark 4)**

### Mark scheme

<p>1 (a) Present the above information on a bar graph.</p> <p>1 (b) Find the difference in percentage of maximum registered people and minimum registered people from the graph.</p>	
<p>Answer 1 (a)</p> 	<p>Guidance</p> <p>A1 representation of information as bars with correct scales</p> <p>A1 At least 8 correct bars correct within 1 graph paper unit and at least one axis labelled.</p>
<p>Answer 1 (b)</p> <p>75%</p>	<p>M1 85 – 10</p> <p>A1 75 (%)</p> <p>Allow 2 marks for correct answer</p>

## Maths8BS2

This assessment item is designed to assess the end of class assessments for CBSE schools.

Subject	Class	Question reference/File name
Maths	VIII	Maths8BS2

Item identity	AO1 marks	AO2 marks	C/N/E*	Content Reference(s)	Marks
Maths8BS2	1		N	8A1a Multiply and divide algebraic expressions (including 2 brackets and up to 2 variables)	1

\*C = Calculator required, N = Calculator not allowed, E = Either

### Item purpose

*The question assesses to study the calculation from given measurement.*

### Sources and diagrams

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### Question

1 What is the area of a rectangle with length  $9y$  and breadth  $4y^2$

- E.  $4y^3$
- F.  $9y^3$
- G.  $13y^3$
- H.  $36y^3$

(1 mark)

**(Total mark 1)**

## Mark scheme

Observe the temperature time graph and answer the following question.

Choose the difference between the temperature at 7 hours and at 21 hours from the options below:

- E.  $4y^3$
- F.  $9y^3$
- G.  $13y^3$
- H.  $36y^3$

Answer	Guidance
D. $36y^3$	1 mark for correct answer