TeenEagle

MATHS

Category - 4
Grade 7-8

PRACTICE QUESTIONS

TMC

Category - 4
Grade 7 - 8

Sample Questions

Topics this category covers:

Topics		
1	Logical Thinking	Construction problems basic speed-distance-time problems advanced number and figure problems logical age and date problems
2	Numbers	Integers, powers and roots Place value, ordering and rounding Fractions, decimals, percentages, ratio and proportion
3	Algebra	Expressions, equations and formulae Sequences Functions and graphs
4	Geometry and Measure	Geometrical reasoning, shapes and measurements Position and transformation
5	Probability and Statistics	Basic Statistics and Probability

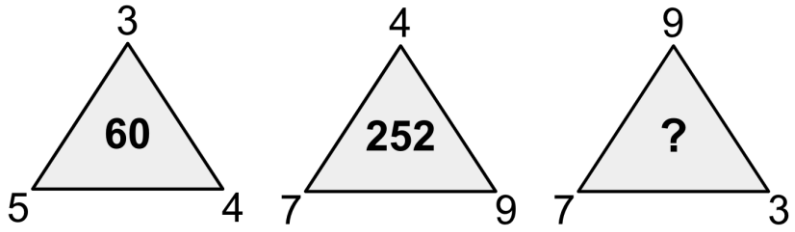
1. *(1 - Logical Thinking: Construction problems)* *3 points*

From the starting point, Mia walks 30 m south. Then she turns right and walks 80 m. Next, she turns left and walks 50 m. Finally, she turns left again and walks 80 m. How far is she from the starting point?

(A) 160 m (B) 130 m (C) 110 m (D) 80 m

2. *(1 - Logical Thinking: Construction problems)* *3 points*

In the following question, select the number which can be placed at the sign of question mark (?) from the given alternatives.



(A) 108 (B) 567 (C) 189 (D) 405

3. *(2 - Numbers: Place value, ordering and rounding)* *3 points*

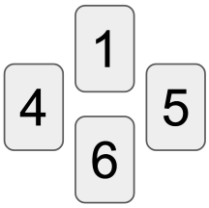
Here is the formula: $y = 5x + 1$

Use this to calculate y_1 value if $x_1 = 30$ and y_2 value if $x_2 = 65$

(A) $y_1 = 150, y_2 = 325$
(B) $y_1 = 151, y_2 = 326$
(C) $y_1 = 30, y_2 = 65$
(D) $y_1 = 95, y_2 = 365$

4. *(2 - Numbers: Place value, ordering and rounding)* *3 points*

Here are four number cards.

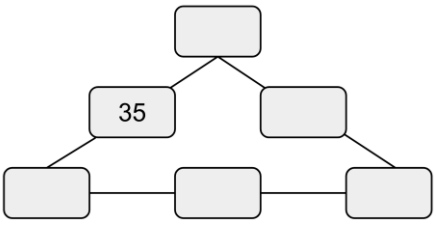


Which arrangement among options is the number that is perfectly divisible with 5?

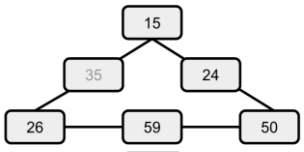
(A) 4516 (B) 1654 (C) 5164 (D) 1645

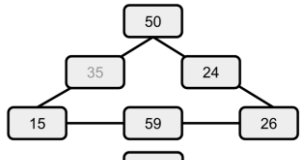
5. *(2 - Numbers: Place value, ordering and rounding)* *3 points*

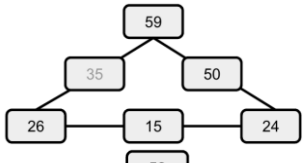
The sum of the three numbers on each side of the triangle equals 100

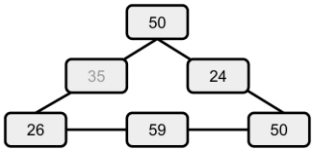


Use the numbers 50, 59, 26, 24 and 15 to complete the diagram. Write one number in each box.

(A)


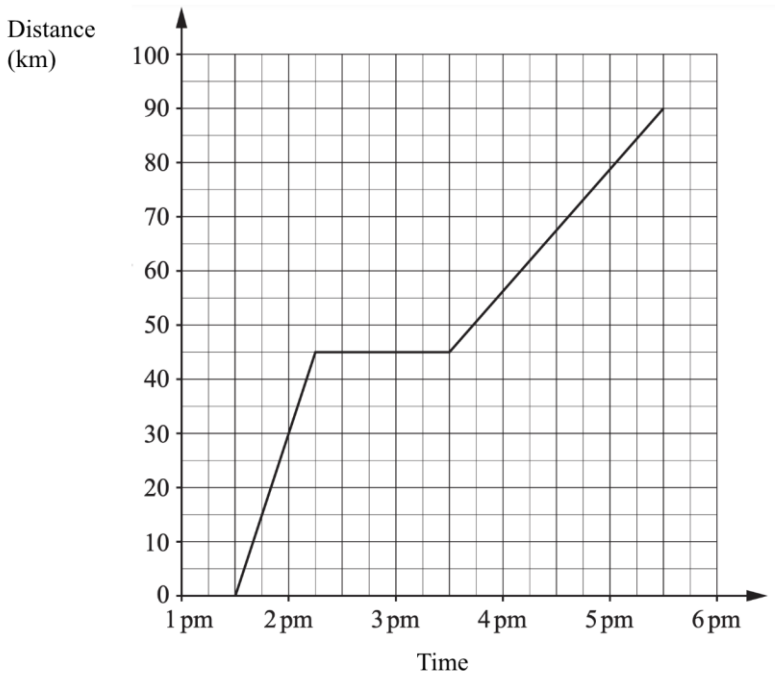
(B)


(C)


(D)


6. *(3 - Algebra: Functions and graphs)* *3 points*

The graph shows Alice's journey from Baltimore city to Wilmington city

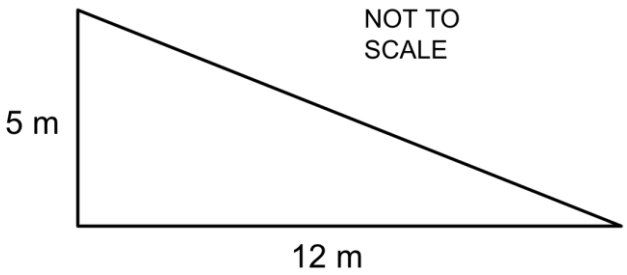


Chen travels the reverse journey from Wilmington to Baltimore.
He leaves Wilmington at 2.30 pm and arrives at Baltimore at 5.15 pm.
If Chen travels at a constant speed, what is the distance they were from Baltimore when they passed each other?

(A) 40 km (B) 50 km (C) 45 km (D) 55 km

7. *(3 - Algebra: Functions and graphs)* *3 points*

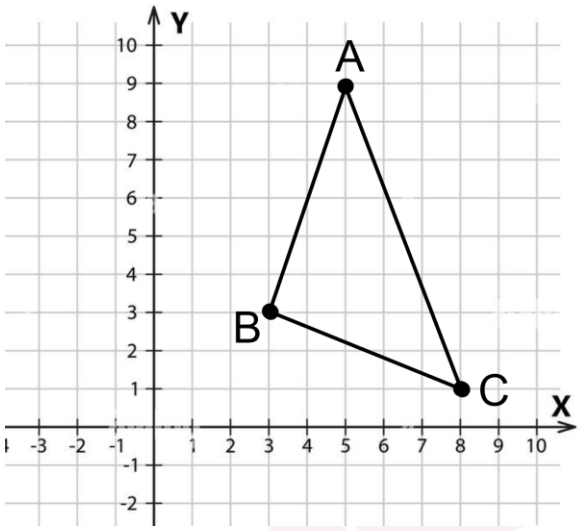
Solve for the missing dimension in the right triangle below.



(A) 25 m (B) 15 m (C) 13 m (D) 12.5 m

8. *(4 - Geometry and Measure: Position and transformation)* *3 points*

The diagram below shows triangle ABC.

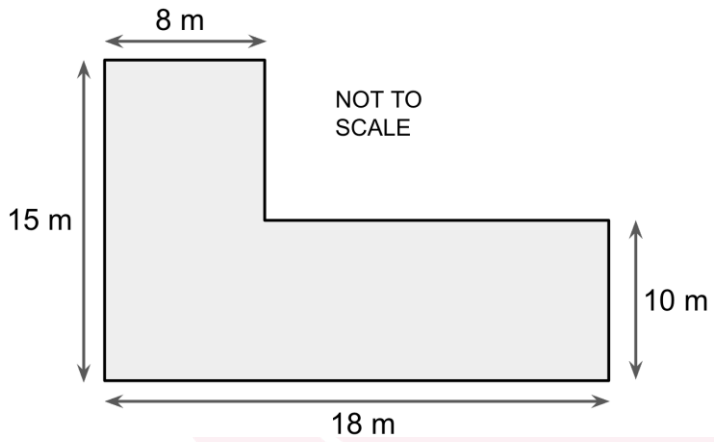


What are the coordinates of point A?

(A) $x = 3, y = 3$
(B) $x = 8, y = 1$
(C) $x = 9, y = 5$
(D) $x = 5, y = 9$

9. *(4 - Geometry and Measure: Geometrical reasoning, shapes and measurements)* *3 points*

The diagram below shows the floor plan.



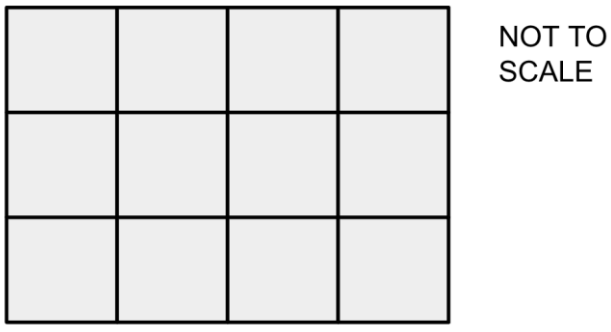
What is the area of the floor?

(A) 50 m^2 (B) 220 m^2 (C) 270 m^2 (D) 80 m^2

10. *(4 - Geometry and Measure: Geometrical reasoning, shapes and measurements)* *3 points*

The diagram shows a square with a perimeter of 32 cm.

If twelve of these squares fit together to make a rectangle as shown below, what is the area of a rectangle?



(A) 56 cm^2 (B) 768 cm^2 (C) 384 cm^2 (D) 96 cm^2

11. *(1 - Logical Thinking: Construction problems)* *4 points*

In a row of people, the position of Amir from the left side of the row is 27^{th} and position of John from the right side of the row is 38^{th}. Find the total number of students in the row, if Amir and John are sitting next to each other?

(A) 63 people (B) 64 people (C) 65 people (D) 66 people

12. *(1 - Logical Thinking: Basic speed-distance-time problems)* *4 points*

A donkey completes a journey in 10 hours. It travels the first half of the journey at the rate of 17 km/hr and second half at the rate of 19 km/hr.

Find the total journey in km.

(A) 190 km (B) 170 km (C) 360 km (D) 180 km

13. *(2 - Numbers: Fractions, decimals, percentages, ratio and proportion)* *4 points*

Max has 80 candies. He gave half of his candies to Jenet and 25% of the left candies to Sally. How many candies does Max have left?

(A) 40 candies (B) 30 candies (C) 35 candies (D) 60 candies

14. *(2 - Numbers: Fractions, decimals, percentages, ratio and proportion)* *4 points*

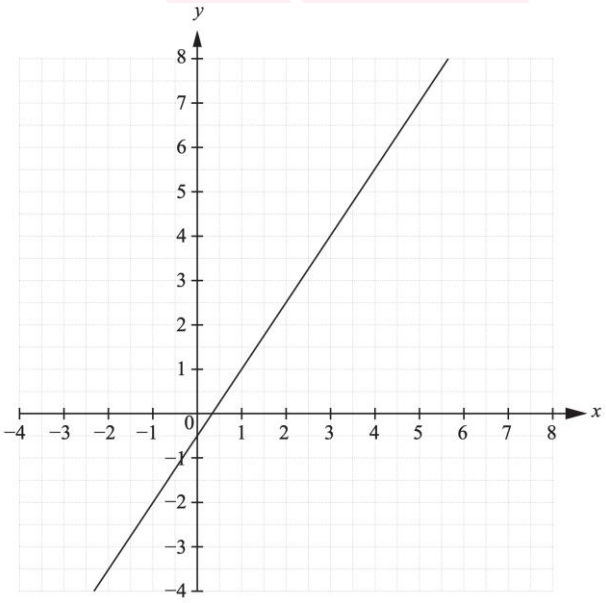
What are the missing numbers in these rations

A) 40 : 35 = x : 7
B) 55 : y = 5 : 3

(A) $x = 8, y = 33$ (B) $x = 5, y = 35$ (C) $x = 33, y = 8$ (D) $x = 5, y = 8$

15. *(3 - Algebra: Functions and graphs)* *4 points*

The graph shows the line with equation $2y = 3x - 1$

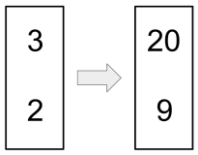


What is the gradient of the line?

(A) 0.5 (B) 1.5 (C) 2.5 (D) 1

16. *(3 - Algebra: Functions and graphs)* *4 points*

Below is the mapping



Look at the following functions.

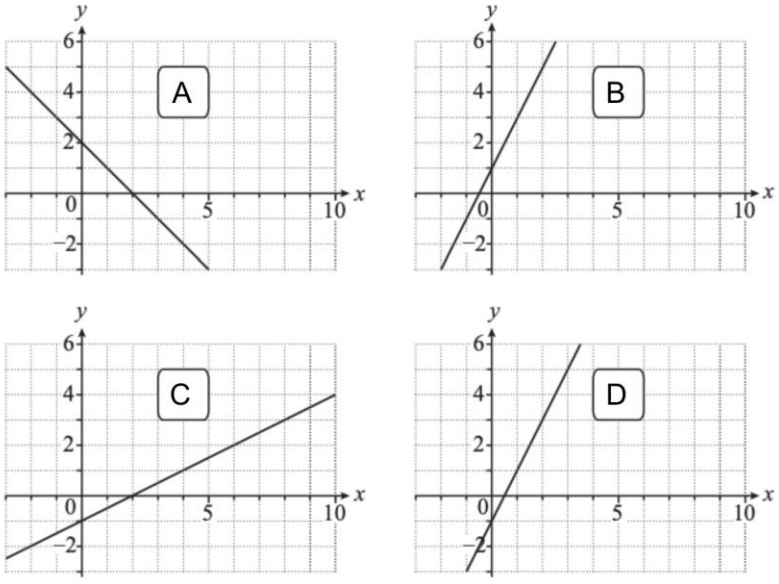
I: $x \rightarrow 5x + 1$
II: $x \rightarrow 7x - 1$
III: $x \rightarrow x^2 + 1$
IV: $x \rightarrow 2x^2 + 1$

Choose two functions that represent the mapping.

(A) I and III (B) II and III (C) II and IV (D) I and IV

17. *(3 - Algebra: Functions and graphs)* *4 points*

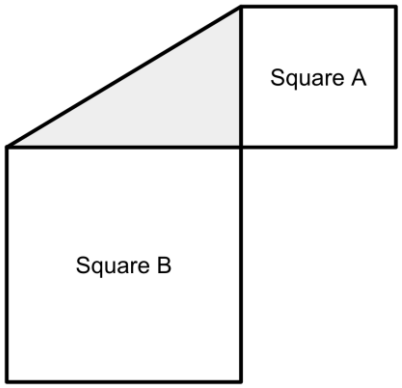
Which of the graphs below is the graph of the function $y = 2x - 1$?



(A) A (B) B (C) C (D) D

18. *(4 - Geometry and Measure: Geometrical reasoning, shapes and measurements)* *4 points*

The diagram shows three different shapes joined.
Squares are drawn on each of the two sides and the shaded triangle is a right-angled triangle.
(the figure is not to scale)



If the area of square A is 64 cm^2 and the area of square B is 144 cm^2, what is the area of the shaded region?

(A) 48 cm^2 (B) 208 cm^2 (C) 96 cm^2 (D) 20 cm^2

19. *(4 - Geometry and Measure: Geometrical reasoning, shapes and measurements)* *4 points*

A triangular prism has 6 vertices, 5 faces and 9 edges.

If the different prism has 12 vertices, how many edges does it have?

(A) 12 edges (B) 18 edges (C) 24 edges (D) 6 edges

20. *(5 - Probability and Statistics: Basic Statistics)* *4 points*

An architect examined 10 windows in a home design and found that they had the following widths:

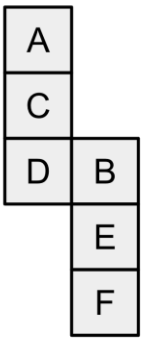
9 inches	5 inches	5 inches	8 inches	5 inches
7 inches	9 inches	5 inches	7 inches	5 inches

What was the median window width?

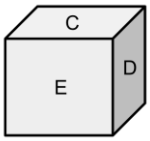
(A) 5 (B) 6 (C) 7 (D) 8

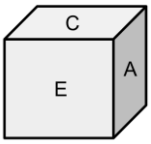
21. *(1 - Logical Thinking: Basic Number and figure patterns)* *5 points*

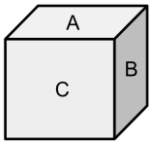
An unfolded dice is shown in the figure below:

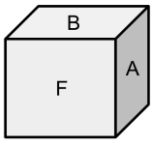


Select the dice from the given options that is identical to the unfolded dice shown.

(A) 

(B) 

(C) 

(D) 

22. *(1 - Logical Thinking: Basic logical age and date problems)* *5 points*

The age of Janny is same as Justin because they are twins, Rachel is younger than Justin, Rachel is younger than Jerry but older than Jack, Justin is younger than Jerry. Who is the eldest among them?

(A) Janny (B) Jerry (C) Justin (D) Jack

23. *(2 - Numbers: Integers, powers and roots)* *5 points*

Solve the equation below for *x*

$$\frac{3^4 \times 3^7}{3^8} = 3^x$$

(A) *x = 3* (B) *x = 8* (C) *x = 11* (D) *x = 27*

24. *(2 - Numbers: Fractions, decimals, percentages, ratio and proportion)* *5 points*

The average mass of the children at age 8 is 25 kg. If from age 8 to age 9 the children's mass increases by 15%, what is the average mass of children at age 9?

(A) 27 kg (B) 28.75 kg (C) 31.25 kg (D) 35 kg

25. *(3 - Algebra: Functions and graphs)* *5 points*

If two lines having the equation *2y = 3x* - 1 and *x + 2y = 7* are plotted on the graph, where will they intersect each other? (find the point with calculation).

(A) *x = 2.5, y = 3.5*
(B) *x = 3, y = 5*
(C) x = 2, y = 2.5
(D) x = 3, y = 2.5

26. *(3 - Algebra: Sequences)* *5 points*

The first five terms of a sequence are given below:

3, 5, 7, 9, 11

What is the 25^{th} term of the sequence provided?

(A) 51 (B) 21 (C) 25 (D) 39

27. *(5 - Probability and Statistics: Basic Statistics and Probability)* *5 points*

Ahmed has a six-sided die numbered 1 to 6.
He throws the die 360 times. Ahmed gets a 'two' 90 times.
What is the relative frequency of throwing a 'two'?

(A) 0.25 (B) 4 (C) 0.75 (D) 0.15

28. *(5 - Probability and Statistics: Basic Statistic)* *5 points*

A farm equipment company kept a record of the number of tractors made each month.

Tractors made	
Month	**Number of tractors**
January	7
February	10
March	7
April	7
May	8
June	7

What is the range of the numbers?

(A) 3 (B) 7 (C) 8 (D) 10

29. *(5 - Probability and Statistics: Basic Statistics and Probability)* *5 points*

A box contains a large number of coloured marbles. Each marble is coloured red or green or blue or yellow.
Alex takes a marble at random from the box and records its color. He then puts it back into the box.He does this 200 times.

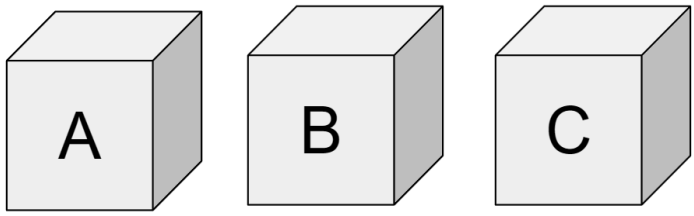
The table shows some of her results.

	Red	**Green**	**Blue**	**Yellow**	**Total**
Frequency	64	48	x	y	**200**
Relative frequency	0.32	z	w	0.16	**1**

(A) $x = 56, y = 32, z = 0.24, w = 0.28$
(B) $x = 44, y = 44, z = 0.26, w = 0.26$
(C) $x = 48, y = 30, z = 0.26, w = 0.28$
(D) $x = 62, y = 26, z = 0.12, w = 0.18$

30. *(5 - Probability and Statistics: Basic Probability)* *5 points*

There are three boxes. You choose one box at random (each box equally likely), then draw two balls without replacement from that box.



- Box A: 3 red, 2 blue, 1 green (total 6)
- Box B: 2 red, 4 blue, 2 green (total 8)
- Box C: 1 red, 3 blue, 6 green (total 10)

What is the probability you draw exactly one red?

(A) $\frac{1}{3}$ (B) $\frac{43}{105}$ (C) $\frac{20}{63}$ (D) $\frac{4}{15}$

Answer key (Exam Questions)

1. D
2. C
3. B
4. D
5. B
6. B
7. C
8. D
9. B
10. B
11. A
12. D
13. B
14. A
15. B
16. C
17. D
18. A
19. B
20. B
21. C
22. B
23. A
24. B
25. C
26. A
27. A
28. A
29. A
30. B