

TMC - 1



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Written Exam – Sample Questions

1. (Logical Thinking)

Which number is closest to 74?

- (A) 89
- (B) 79
- (C) 68
- (D) 64



2. (Numbers and Operations)

The two-digit number 28 has its digits reversed to form a new number.

By how much is the new number greater or less than the original number?

- (A) 45 smaller
- (B) 54 smaller
- (C) 45 greater
- (D) 54 greater



3. (Numbers and Operations)

There are 5 red cars and 4 yellow cars on the table.

Three yellow cars were taken away.

What fraction of the cars are red now?

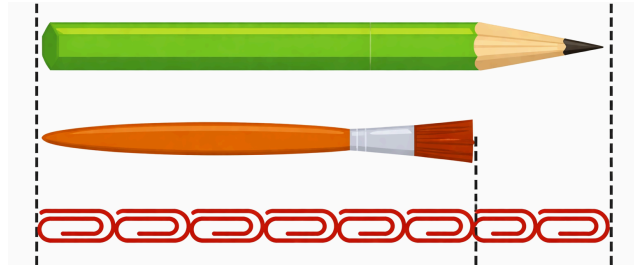
- (A) $\frac{5}{6}$
- (B) $\frac{5}{9}$
- (C) $\frac{2}{5}$
- (D) $\frac{5}{2}$



4. (Measurement)

Nadiya uses objects to measure the length of her pencil.

Each  stands for 5 cm.



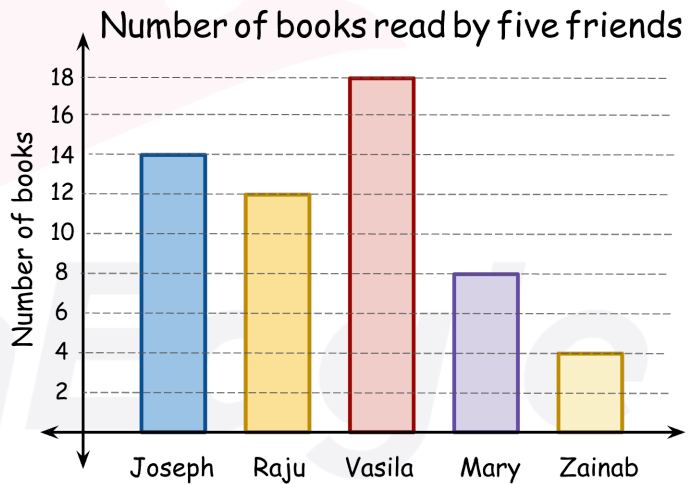
The pencil is _____ cm long.
The paintbrush is _____ cm long.

- (A) 40, 35 (B) 45, 35 (C) 40, 30 (D) 45, 30

5. (Numbers and Operations)

The bar chart shows the number of books read by five friends: Joseph, Raju, Vasila, Mary, and Zainab.

How many more books did Vasila and Raju read altogether than Mary and Zainab?

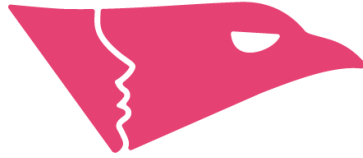


- (A) 10
(B) 14
(C) 20
(D) 24

Answer Key

1.	B
2.	D
3.	A
4.	C
5.	B

TMC - 2



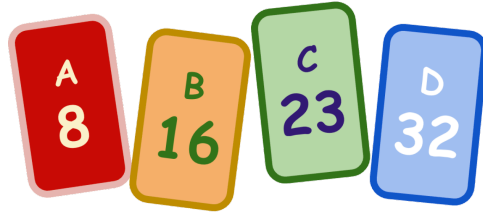
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Written Exam – Sample Questions

1. (Logical Thinking)

Choose the one that does not belong:



- (A) Card A (B) Card B (C) Card C (D) Card D

2. (Numbers and Operations)

What number should replace the question mark?

$$8 + 8 + 8 + 8 + 8 + 8 = \boxed{?} \times 6$$

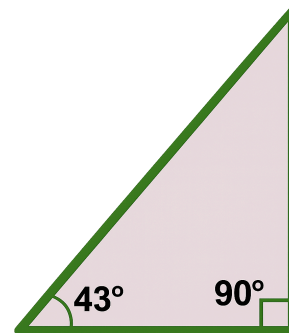
- (A) 8 (B) 7 (C) 6 (D) 5

3. (Geometry)

In a right-angled triangle, one of the acute angles is 43° .

What is the size of the third angle?

- (A) 47° (B) 37° (C) 33° (D) 27°



4. (Measurement)

A rectangular cycling track is 90 m long
45 m wide.

Mateo rides his bike for 2 full laps and
then half a lap more around the track.

How many metres does Mateo cycle in
total?

- (A) 630 m
- (B) 655 m
- (C) 660 m
- (D) 675 m



and

5. (Numbers and Operations)

Noah has £75.

He buys 3 books costing £12 each.

He uses a £5 discount coupon (subtract £5 from the total).

Then he buys 2 markers at £7 each and pays £4 for gift wrapping.

How much money is left?

- (A) £12
- (B) £26
- (C) £50
- (D) £49

Answer Key

1.	C
2.	A
3.	A
4.	D
5.	B

TMC - 3



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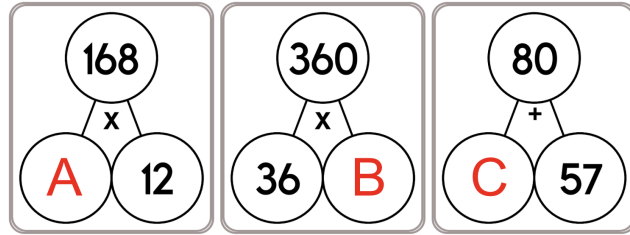
Written Exam – Sample Questions

1. (Logical Thinking)

Some numbers are missing from the figures shown.

In the first two figures (from the left), the number written above each figure is obtained by multiplying the two numbers below.

In the last figure, the number written above is obtained by adding the two numbers below.



What is the value of $A - B + C$?

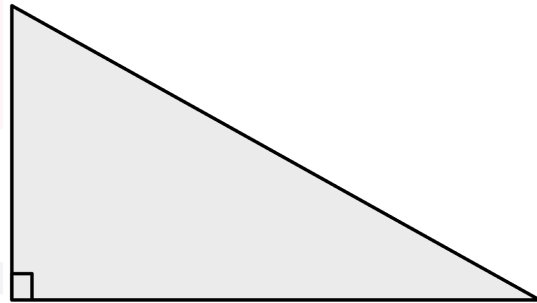
- (A) 10 (B) 15 (C) 27 (D) 30

2. (Geometry)

A right-angled triangle has sides of 18 cm and 24 cm adjacent to the right angle.

What is the length of the hypotenuse?

- (A) 28 cm
(B) 30 cm
(C) 32 cm
(D) 36 cm

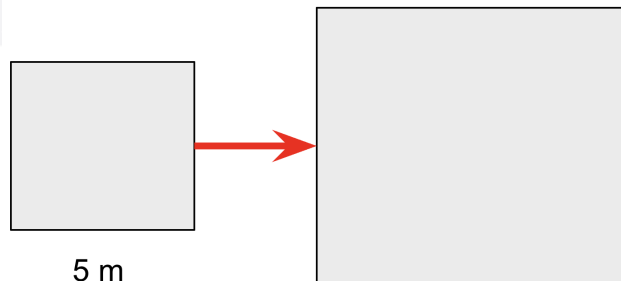


3. (Percentage)

The side of a square is increased from 5 m to 15 m.

By what percentage does its area increase?

- (A) 50%
(B) 100%
(C) 400%
(D) 800%



4. (Fractions)

Solve the expression below:

$$2\frac{1}{3} - \frac{5}{6}$$

- (A) $1\frac{1}{2}$ (B) $1\frac{2}{3}$ (C) $1\frac{5}{6}$ (D) $2\frac{1}{6}$

5. (Ratio and Proportions)

A tennis coach shares a reward among three students. These three students (Tom, Lina, and Ken) receive money in the ratio of 2 : 5 : 4.

If Lina receives £20, what is the total reward?

- (A) £44 (B) £72 (C) £96 (D) £120

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Answer Key

1.	C
2.	B
3.	D
4.	A
5.	A

TMC - 4



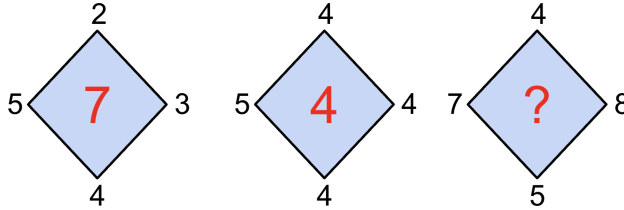
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Written Exam – Sample Questions

1. (Logical Thinking)

Look at the pattern of numbers in the picture.



What is the missing number?

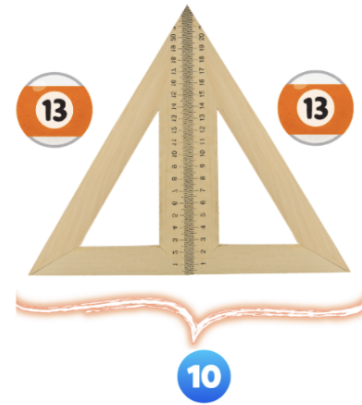
- (A) 3 (B) 6 (C) 11 (D) 36

2. (Geometry)

An isosceles triangle has a base of 10 cm and two equal sides of 13 cm.

What is its height?

- (A) 23 cm
(B) 13 cm
(C) 12 cm
(D) 8 cm



3. (Geometry)

A square is drawn with vertices at (0,0), (4,0), (4,4), and (0,4).

It is rotated 90° counterclockwise about the origin.

What are the new coordinates of the vertex that was originally at (4,4)?

- (A) (4, -4)
(B) (-4, 4)
(C) (-4, -4)
(D) (4, 4)

4. (Geometry)

The sum of the interior angles of a polygon is 1260° .
How many sides does the polygon have?

- (A) 9 (B) 8 (C) 7 (D) 6

5. (Algebra)

Given the two linear equations below:

$$3y - x = 7 \text{ and } 2y - 5x = -4$$

Determine the point of intersection of the two lines.

- (A) (3, 2) (B) (2, 3) (C) (-2, 3) (D) (-3, 2)



Answer Key

1.	D
2.	C
3.	B
4.	A
5.	B

TMC - 5



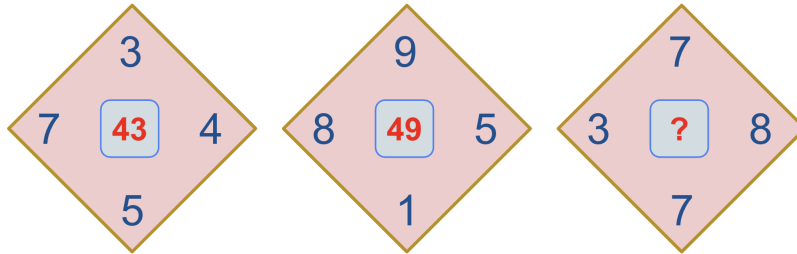
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Written Exam – Sample Questions

1. (Logical Thinking)

Check the pattern and determine the missing number



- (A) 36 (B) 49 (C) 55 (D) 73

2. (Geometry)

Sophia plots the points A(1,3) and B(5,6). Find the distance AB.

Find the distance AB.

- (A) $\sqrt{13}$ (B) 5 (C) $\sqrt{41}$ (D) 7

3. (Numbers: Power, roots and standard form)

A student defines two expressions in terms of a and b:

$$a = \sqrt{25 + \sqrt{36}}, \quad b = \sqrt[3]{8 - \sqrt{49}}$$

Find the exact value of $a^2 + b^3$.

- (A) 21 (B) 27 (C) 32 (D) 36

4. (Algebra)

A student rewrites the rational expression:

$$\frac{5x + 7}{x^2 - 4}$$

in the form:

$$\frac{5x + 7}{x^2 - 4} = \frac{A}{x - 2} + \frac{B}{x + 2}$$

Find the values of A and B .

(A) $A = 17$ and $B = 4$

(B) $A = \frac{15}{3}$ and $B = \frac{4}{3}$

(C) $A = 5$ and $B = -2$

(D) $A = \frac{17}{4}$ and $B = \frac{3}{4}$

5. (Basic trigonometric equations)

Solve the trigonometric equation below:

$$4 \cos x + 2 = 2 \sin^2 x$$

for $0^\circ \leq x \leq 360^\circ$

(A) $60^\circ, 360^\circ$

(B) $90^\circ, 270^\circ$

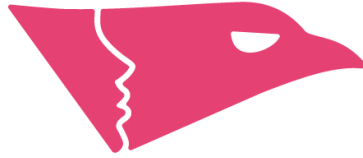
(C) $120^\circ, 240^\circ$

(D) $0^\circ, 180^\circ, 360^\circ$

Answer Key

1.	D
2.	B
3.	C
4.	D
5.	B

TMC - 6



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Written Exam – Sample Questions

1. (Logical Thinking)

Split 3, 5, 7, 10, 12, 14, 16, and 17 into 2 groups of 4 numbers such that the sums of the numbers in both groups are equal.

Find the product of the numbers in the group that contains 17.

- (A) 5040
- (B) 6120
- (C) 7140
- (D) 8920

2. (Logical Thinking)

Use numbers 1 to 5 to fill in the boxes in the table below such that each row, each column, and both diagonals must contain all five numbers exactly once.

1	2	3	4	
				X
	3			1
5			3	
		5		

What number should be written in the box X?

- (A) 5
- (B) 3
- (C) 2
- (D) 1

3. (Functions)

The function

$$f(x) = \frac{6}{3x + 1}, \quad x \geq 0$$

Find the domain of $f^{-1}(x)$.

- (A) $0 < x \leq 6$
- (B) $-2 < x < 0$
- (C) $-6 < x < 6$
- (D) $-2 \leq x \leq 2$

4. (Integration)

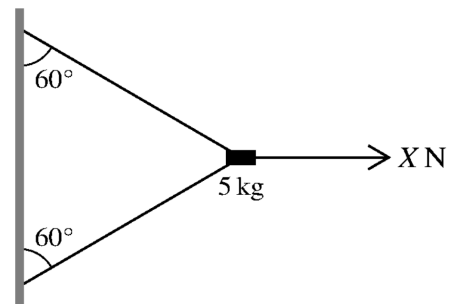
Find the value of

$$\int_0^1 (1+x)e^{-x} dx$$

- (A) $\frac{1}{e}$
- (B) $2 - \frac{3}{e}$
- (C) $1 + \frac{2}{e}$
- (D) $\frac{e}{3}$

5. (Mechanics: Forces and Equilibrium)

A block of mass 5 kg is held in equilibrium near a vertical wall by two light strings and horizontal force of magnitude X N, as shown in the diagram. The two strings are both inclined at 60° to the vertical.



Given that $X = 100$ N and taking $g = 10 \text{ N kg}^{-1}$, find tension in the lower string.

- (A) $T_L = 10 \text{ N}$
- (B) $T_L = 8.54 \text{ N}$
- (C) $T_L = 7.2 \text{ N}$
- (D) $T_L = 7.74 \text{ N}$

Answer key	
1.	B
2.	C
3.	A
4.	B
5.	D