german
math
olympiad

PAST PAPERS

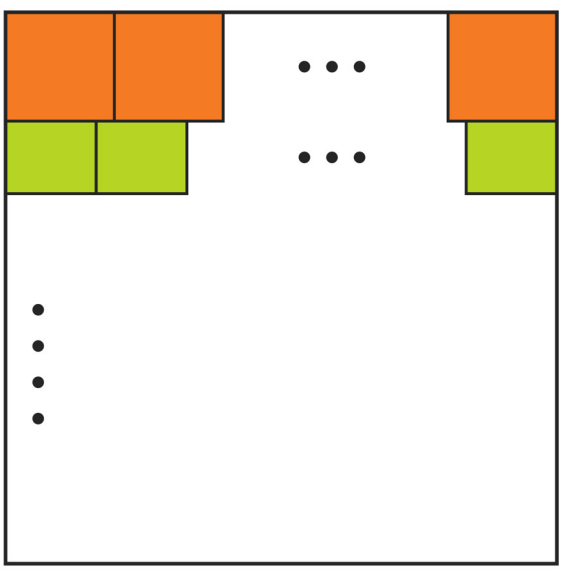
Grades 5-6

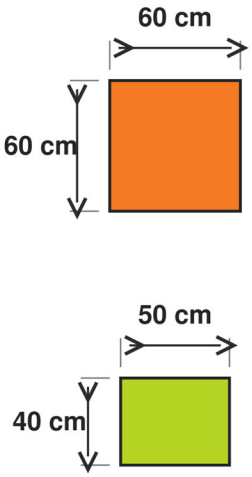
1-

A suitcase code is a 3-digit number that is divisible by both 4 and 10. Which of the following could be the code?

A) 130 B) 250 C) 570 D) 640

2-





A square floor is tiled in horizontal stripes: one full row of orange 60×60 cm squares, then one full row of green 50×40 cm rectangles, alternating. Tiles are not cut or overlapped.

What is the minimum number of green tiles used?

A) 12

B) 18

C) 24

D) 30

3-



The number 5254873561 is written on a strip. Julian makes two cuts so he gets three numbers.

What is the smallest possible sum?

A) 8902

B) 4573

C) 5959

D) 6688

4-



On the number line above, equally spaced, which number is represented by "?"

A) 5.9 B) 6.1 C) 6.3 D) 6.5

5-

An online game can start only if more than 80 gamers join, and only one round of invitations can be made each day. On Wednesday, one gamer invites three new gamers, so four gamers have joined by the end of Wednesday. On each following day, every gamer currently in the group—including gamers who have already invited people—invites two new gamers. Only one invitation round takes place each day. On which day will the total number of gamers first exceed 80?

A) Friday

B) Saturday

C) Sunday

D) Monday

6-

A gardener usually waters 8 plants a day. On busy days, she waters 14 plants. In 10 days she watered 104 plants.

On how many days was she busy?

A) 2

B) 3

C) 4

D) 6

7-

Bob has a piece of fabric $\frac{13}{4}$ cm long. He cuts $\frac{1}{2}$ cm from the right end and $\frac{3}{8}$ cm from the left end. The remaining piece is divided into 19 equal parts. How long is each part?

A) $\frac{1}{3}$ cm B) $\frac{1}{6}$ cm C) $\frac{1}{7}$ cm D) $\frac{1}{8}$ cm

8-

Chocolate	€1.70
Ice cream	€1.18
Biscuits	€1.85
Chips	€1.09

The prices of some items at a grocery store are shown above. What is the difference between the most expensive and the least expensive items?

A) 0.82

B) 0.76

C) 0.15

D) 0.09

9-

For the fraction $\frac{A}{15}$, it is greater than 5 and less than 6.

Which of the following values can be written in place of A?

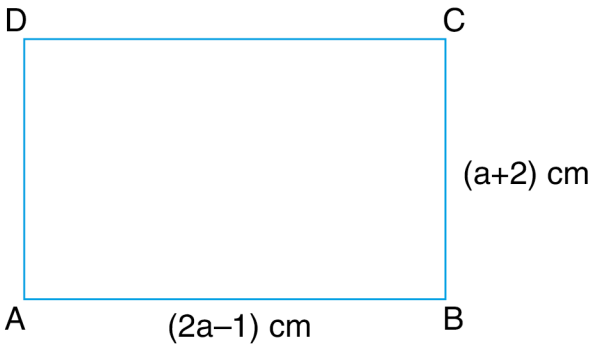
A) 73

B) 74

C) 75

D) 76

10-



Which algebraic expression gives the perimeter of the rectangle shown above?

A) 6a + 3 B) 4a – 2 C) 6a + 2 D) 2a – 6

11-

Kelly visits her doctor on the 16th of December, which is a Wednesday. The doctor says, 'I want to see you again on the first Tuesday of next year.' On which date will Kelly's next appointment be?

A) 1 January

B) 3 January

C) 5 January

D) 7 January

12-

The second term of an arithmetic sequence is 53, and the fourth term is 65. What is the first term?

A) 45

B) 46

C) 47

D) 48

13-

A 3-digit composite number has exactly 9 positive divisors.
Which could it be?

A) 144 B) 150 C) 196 D) 294

14-



Four people estimate the height of the Statue of Moses by Michelangelo, which is 235 cm tall.

Who's closest with their estimate?

(1 shaku ≈ 30.3 cm, 1 inch = 2.54 cm, 1 foot = 30.48 cm)

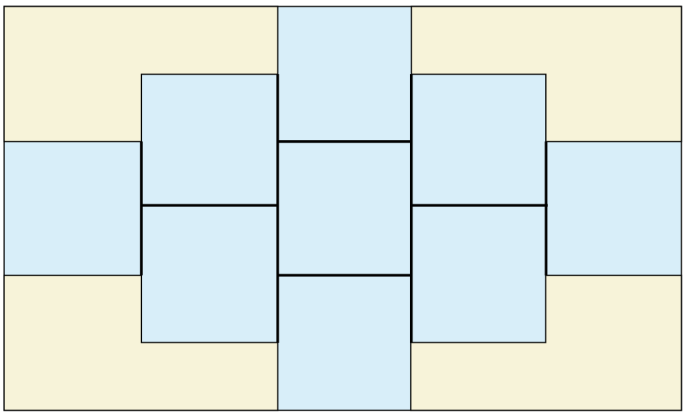
A) Kei (Japan): "About 7.8 shaku."

B) Alex (UK): "About 100 inches."

C) Mira (EU): "About 2.4 metres."

D) Liam (US): "About 8 feet."

15-



A rectangular region is partitioned into nine congruent blue squares and four identical concave yellow regions, as shown in the figure.

If the area of one blue square is 9 cm^2, what is the sum of the perimeters of the four yellow regions?

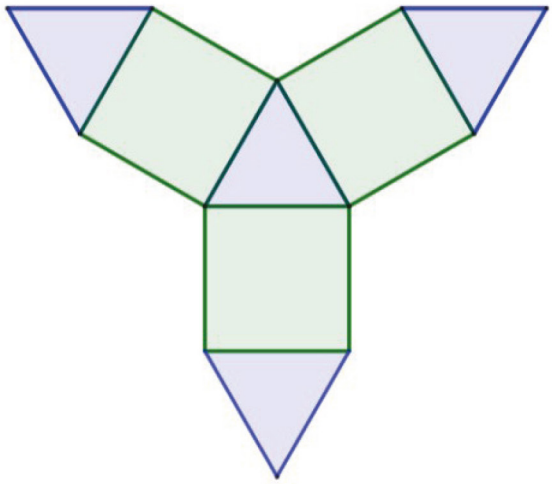
A) 60 cm B) 72 cm C) 84 cm D) 96 cm

16-

If the surface area of a cube is 150 cm^2, what is its edge length?

A) 3 cm B) 4 cm C) 5 cm D) 6 cm

17-



The perimeter of each blue equilateral triangle is 18 cm, and each green shape is a square.

Accordingly, what is the perimeter of the entire figure?

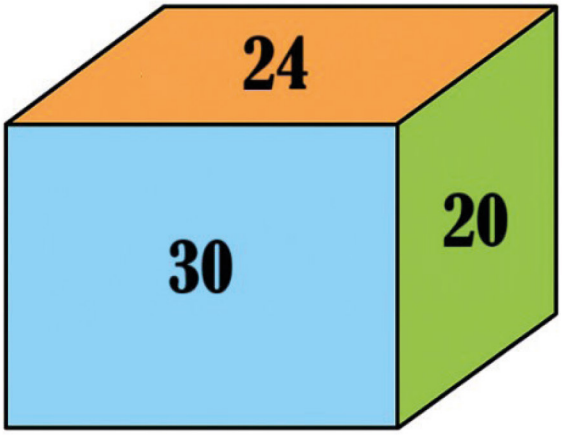
A) 54 cm

B) 60 cm

C) 66 cm

D) 72 cm

18-



The areas of three pairwise adjacent faces of a right rectangular prism are 20 cm^2, 24 cm^2, and 30 cm^2.

What is its volume?

A) 90 cm^3

B) 100 cm^3

C) 120 cm^3

D) 150 cm^3

19-

12, 9, 17, 20, A, 15

The range (difference between largest and smallest values) of the data set above is 13. What is the sum of the largest and smallest possible values of A?

A) 29 B) 28 C) 27 D) 26

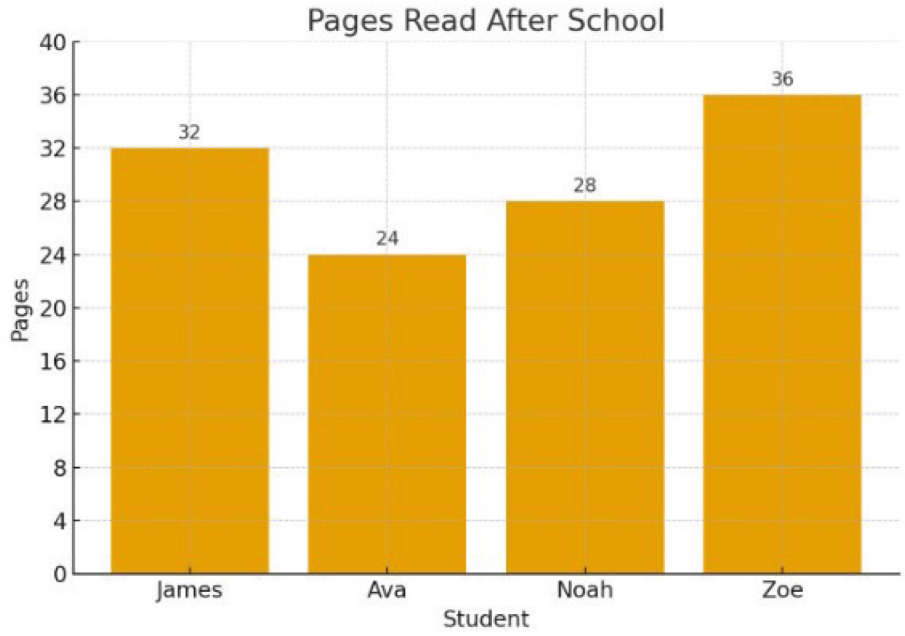
20-

Ally received 50, 55, and 70 likes on her three tweets, and 70 and 80 likes on her two stories.

Accordingly, what is the average number of likes for all of Ally's social media posts?

A) 64 B) 65 C) 66 D) 67

21-



The bar chart above shows the number of pages read after school.

Which of the following questions can be answered using only this graph?

A) How many minutes did Zoe read each day?

B) How many more pages did Zoe read than Ava?

C) Which book genre did James prefer?

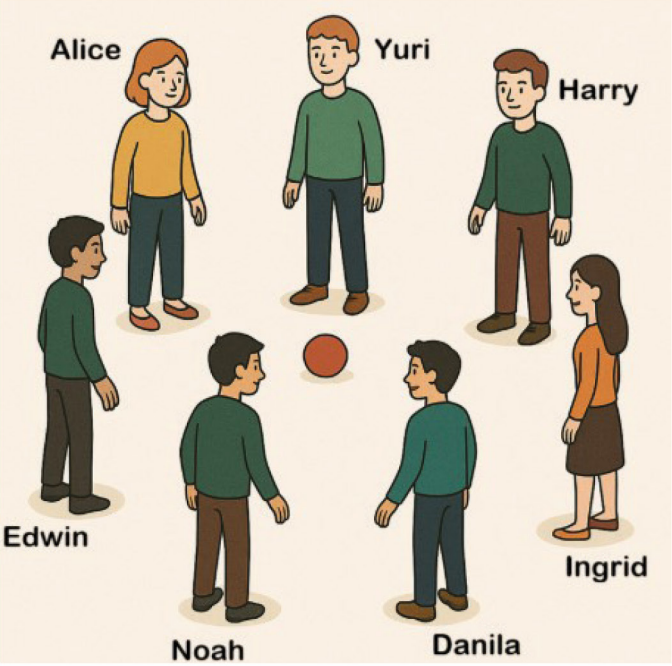
D) How many pages did the class read last month?

22-

Rob chooses his jersey number at random from the prime numbers between 1 and 45, with every eligible number equally likely.
What is the probability that he chooses 19?

A) $\frac{1}{13}$ B) $\frac{1}{14}$ C) $\frac{1}{15}$ D) $\frac{1}{12}$

23-



Seven friends—Alice, Danila, Edwin, Harry, Ingrid, Noah, and Yuri—play "pass the ball." **A player must pass to a friend whose first letter matches the last letter of the passer's name.**

(Example: Alice ends with e, so she must pass to Edwin.)

If the game starts with Yuri, who receives the 5th pass?

(Note: capital "I" and lowercase "i" are the same letter.)

A) Danila

B) Edwin

C) Noah

D) Ingrid

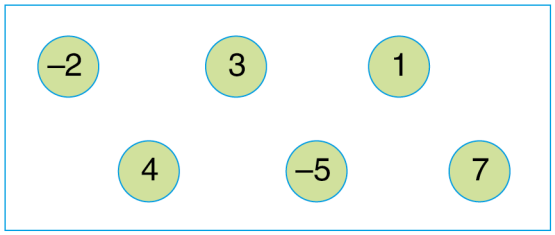
24-



Two fair dice, one yellow and one blue, are rolled. What is the probability that the yellow die shows a value less than 4 and the blue die shows a value greater than 4?

A) $\frac{1}{6}$ B) $\frac{1}{5}$ C) $\frac{1}{4}$ D) $\frac{1}{3}$

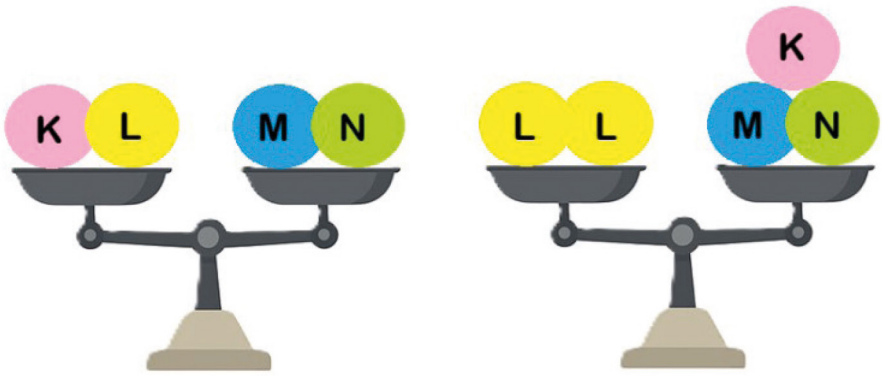
25-



On the board above, there are 6 cards with numbers written on them. How many cards must be removed so that the sum of the numbers on the remaining cards is greater than 14?

A) 1 B) 2 C) 3 D) 4

26-



Four different colour balls weigh 20 g, 30 g, 30 g and 40 g.

Some measures have been made with them as above.

Accordingly, which two balls weigh 30 g?

A) K and L B) M and N C) K and N D) L and M

27-

The people of an ancient tribe used peanuts and chestnuts to represent numbers. A peanut (🥜) stood for 1, and a chestnut (🌰) stood for 4.

How did they represent the number 23 using this system?

A) 🌰🌰🌰🌰🌰🥜🥜🥜

B) 🌰🌰🌰🌰🥜🥜🥜

C) 🌰🌰🌰🥜🥜

D) 🌰🌰🌰🌰🌰🌰🥜

28-

The sum of the ages of Anna and her father is 50, and the sum of the ages of her father and her grandfather is 120.

How old was her grandfather when Anna was born?

A) 60

B) 70

C) 80

D) 90

29-



The sum of the ages of Clara and her father is 55, and the sum of the ages of her father and her grandfather is 115.
How old was her grandfather when Clara was born?

A) 55
B) 60
C) 65
D) 70

30-

A basket has 40 oranges and 40 bananas.
Tom picks 40 fruits, and Jerry takes the rest.
Which of the following must always hold?

A) Tom got as many oranges as bananas.
B) Tom got as many bananas as Jerry got oranges.
C) Tom got at least one orange.
D) Tom got as many bananas as Jerry got bananas.

Answer Key

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