

20.03.2025.

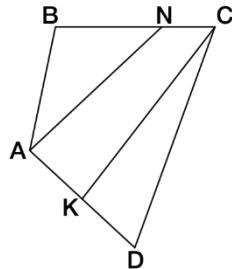
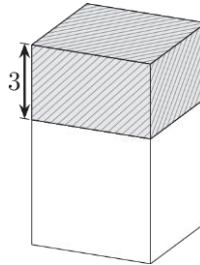
7.-8. klase

25. The letters  $p, q, r, s$  and  $t$  represent five consecutive positive integers, though not necessarily in that order. The sum of  $p$  and  $q$  is 69 and the sum of  $s$  and  $t$  is 72. What is the value of  $r$ ?

- (A) 29 (B) 31 (C) 34 (D) 37 (E) 39

26. When the height of a cuboid is reduced by 3 cm, its surface area is reduced by  $60 \text{ cm}^2$ . The resulting shape is a cube. What is the volume of the original cuboid, in  $\text{cm}^3$ ?

- (A) 75 (B) 125 (C) 150 (D) 200 (E) 225



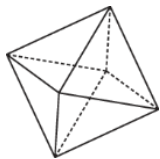
27. In the quadrilateral  $ABCD$ , the points  $N$  and  $K$  are marked on sides  $BC$  and  $AD$  respectively so that  $BN = 2NC$  and  $AK = KD$ . The area of triangle  $CKD$  is 2, and the area of triangle  $ABN$  is 6. What is the area of quadrilateral  $ABCD$ ?

- (A) 13 (B) 14 (C) 15 (D) 16 (E) 17

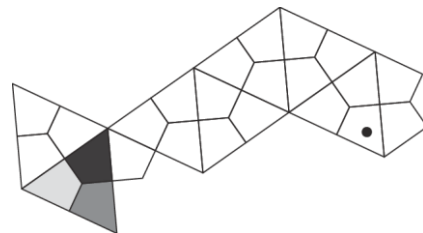
28. Some birds, including Ha, Lo, Nha and Tra, are perching on four parallel wires. There are 10 birds perched above Ha. There are 25 birds perched above Lo. There are five birds perched below

Nha. There are two birds perched below Tra. The number of birds perched above Tra is a multiple of the number of birds perched below Tra. How many birds in total are perched on the four wires?

- (A) 27 (B) 30 (C) 32 (D) 37 (E) 40



29. The figure shows an octahedron and its net. Each face of the octahedron is divided into three parts. The octahedron is to be coloured with black, dark grey and light



grey colours in such a way so that the parts that come out of the same vertex or out of an opposite vertex are the same colour. One face of the octahedron has already been coloured.

Which colour could the part marked with a dot be coloured?

- (A) only black (B) only dark grey  
(C) only light grey  
(D) both black and dark grey are possible  
(E) both black and light grey are possible

30. Ada keeps golden, red, black, pink and white pearls in five small boxes. Each box contains pearls of only one color. Boxes are labeled, and all the labels (A) – (E) are true. Ada's friend Lilly wants to know which box contains the gold pearls. She may open exactly one of the five boxes to look inside. What label is on the box that Lily must open to know exactly which of the boxes contains the golden pearls?

- (A) golden or red (B) pink or black  
(C) black or golden (D) not black  
(E) pink or white

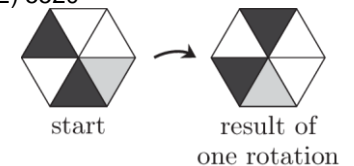
### 3 point problems

2025

1. Lisa has four wooden digits. She can use them to form the number 2025. What is the largest number she can form with these digits?

- (A) 2502 (B) 5202 (C) 5220 (D) 5502 (E) 5520

2. Isabelle rotates the hexagonal sheet of paper. Each rotation turns the hexagon through the same angle in the same direction. The figure shows the result of one rotation. After which of these numbers of rotations does the sheet look as it did at the start?



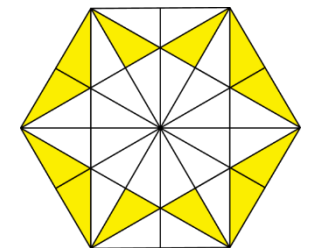
- (A) 7 (B) 8 (C) 9 (D) 10 (E) 12

3. Sandra rolls three dice and gets a total of 8. All three dice show a different number of dots. Which number of dots could Sandra not have rolled on any of her dice?



4. The regular hexagon shown is divided into many triangles of equal area. Which fraction of the hexagon is shaded?

- (A)  $\frac{1}{2}$  (B)  $\frac{1}{3}$  (C)  $\frac{1}{4}$  (D)  $\frac{1}{5}$  (E)  $\frac{1}{6}$



5. How many lots of 12 minutes are there in 12 hours?

- (A) 60 (B) 24 (C) 12 (D) 10 (E) 6

6. Daniel is 5 years old. His brother Dominic is 6 years older. What will be the sum of their ages after 7 years?

- (A) 26 (B) 27 (C) 28 (D) 29 (E) 30

$$\square - \square + \square - \square$$

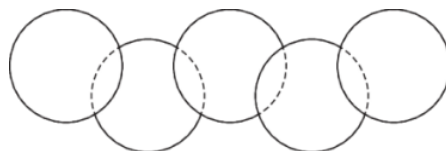
7. Ohad creates examples of calculations by writing four numbers 2, 0, 2 and 5 into the four squares shown, one for each square. What is the smallest result that Ohad could get?

- (A) -7 (B) -6 (C) -5 (D) -4 (E) -3

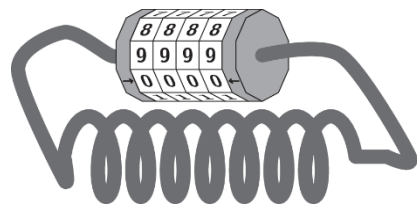
8. There are ten more truth-tellers than liars in a room. Everyone in the room was asked, "Are you a truth-teller?" and everyone gave an answer. A total of 20 people answered, "Yes". How many liars are in the room?

- (A) 0 (B) 5 (C) 15 (D) 20 (E) 25

9. Five circles, each with an area of  $8\text{ cm}^2$ , overlap each other to form the figure shown. The area of each section where two circles overlap is  $1\text{ cm}^2$ . What is the total area covered by the figure?



- (A)  $32\text{ cm}^2$  (B)  $36\text{ cm}^2$   
(C)  $38\text{ cm}^2$  (D)  $39\text{ cm}^2$  (E)  $42\text{ cm}^2$



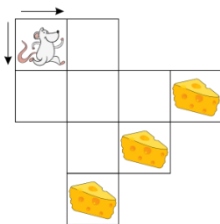
10. The real combination for the bicycle lock shown in the picture is 0000. However, when someone looks at it from the side, they see 8888. When Paul looks at the combination of his friend's lock from the side, he sees 2815. What is the real combination of his friend's lock?

- (A) 4037 (B) 4693 (C) 0639 (D) 0693 (E) 9603

#### 4 point problems

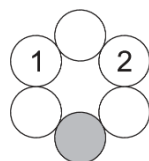
11. Matjaz the mouse wants to get to a piece of cheese. He can only move horizontally or vertically between any two cells. How many different routes can Matjaz take to reach a piece of cheese?

- (A) 3 (B) 5 (C) 8 (D) 10 (E) 11



12. There are five hurdles in a 60 m hurdles race. The first hurdle is after 12 m. The gap between any two consecutive hurdles is 8 m. How far is the last hurdle from the finish?

- (A) 16 m (B) 14 m (C) 12 m (D) 10 m (E) 8 m

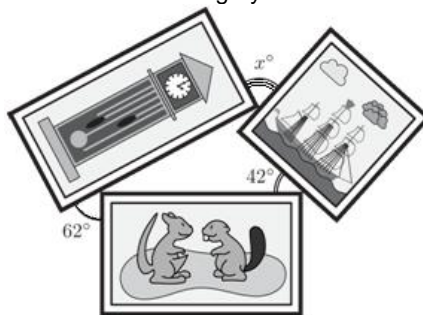


13. Edgar writes numbers in circles. He has already written two numbers, as shown. Edgar wants each number to be equal to the sum of the numbers in two adjacent circles. What number will he write in the gray circle?

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

14. Louise places three rectangular pictures in the way shown. What is the value of  $x$ ?

- (A) 64 (B) 70  
(C) 72 (D) 76 (E) 80



15. Werner is on a treadmill in the gym. He keeps looking at two stopwatches. The first shows the time elapsed since he started and the second the time remaining until the end of his session. At some point the two stopwatches show the same reading. What do they show at that point?

(A) 17:50 (B) 18:00 (C) 18:12 (D) 18:15 (E) 18:20

16. Sam wants to fill all the rectangles with a different prime number less than 20 so that the value of A is an integer.

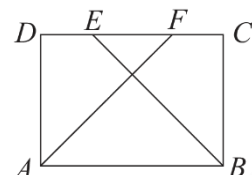
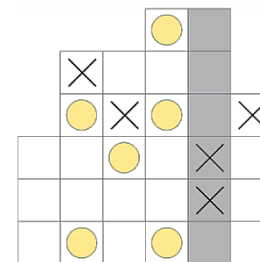
$$A = \frac{\square + \square + \square + \square + \square + \square + \square}{\square}$$

What is the maximum possible value of A?

- (A) 20 (B) 14 (C) 10 (D) 8 (E) 6

17. Martin fills in the cells on the diagram shown so that each cell contains either a cross or a circle. At the same time, there should not be four consecutive identical symbols in any column, any row and any diagonal. What will the column coloured gray contain?

- (A) 3 circles and 3 crosses (B) 2 circles and 4 crosses  
(C) 4 circles and 2 crosses (D) 5 circles and a cross  
(E) a circle and 5 crosses



18. In the rectangle  $ABCD$ , the points  $E$  and  $F$  are marked on side  $DC$ , so that  $\angle EBA = \angle DFA = 45^\circ$  and  $AB + EF = 20\text{ cm}$ . What is the length of  $BC$ ?

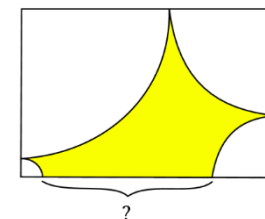
- (A) 4 cm (B) 6 cm (C) 8 cm (D) 10 cm (E) 12 cm

19. Bowl X contains seven balls numbered 1, 2, 6, 7, 10, 11 and 12. Bowl Y contains five balls numbered 3, 4, 5, 8, and 9. Which ball should be transferred from bowl X to bowl Y in order to increase the average number of the numbers on the balls in each bowl?

- (A) 6 (B) 7 (C) 10 (D) 11 (E) 12

20. Peter has drawn a quarter circle with centre at each corner of a flag with dimensions  $12\text{ cm}$  by  $9\text{ cm}$  and coloured the region formed, as shown. What is the length of the segment indicated by the question mark?

- (A) 5 cm (B) 6 cm (C) 7 cm (D) 8 cm (E) 9 cm



#### 5 point problems

21. In the six-digit integer  $\overline{PAPAYA}$ , different letters stand for different digits, the same letter always represents the same digit, and  $= P + P = A + A + A$ . What is the value of  $P \cdot A \cdot P \cdot A \cdot Y \cdot A$ ?

- (A) 432 (B) 342 (C) 324 (D) 243 (E) 234

22. During two sessions of football training, Paul shoots a total of 17 times at a target wall. He hits with 60% of the shots he shoots in the first session. He hits with 75% of the shots he shoots in the second session. How many times did he hit the target wall in the second session?

- (A) 6 (B) 7 (C) 8 (D) 9 (E) 10

23. Anton always leaves for school at 8:00 a.m. His school is 1 km away. When he walks, his speed is 4 km/h. When he cycles, his speed is 15 km/h. He is 5 minutes early when he walks. How many minutes early is he when he cycles?

- (A) 12 (B) 13 (C) 14 (D) 15 (E) 16

24. Ria places four squares side by side, as shown. What is the area of the shaded quadrilateral  $ABCD$ ?

- (A) 54 (B) 60 (C) 66 (D) 72 (E) 80

