KANGAROO MATH THAILAND 2026

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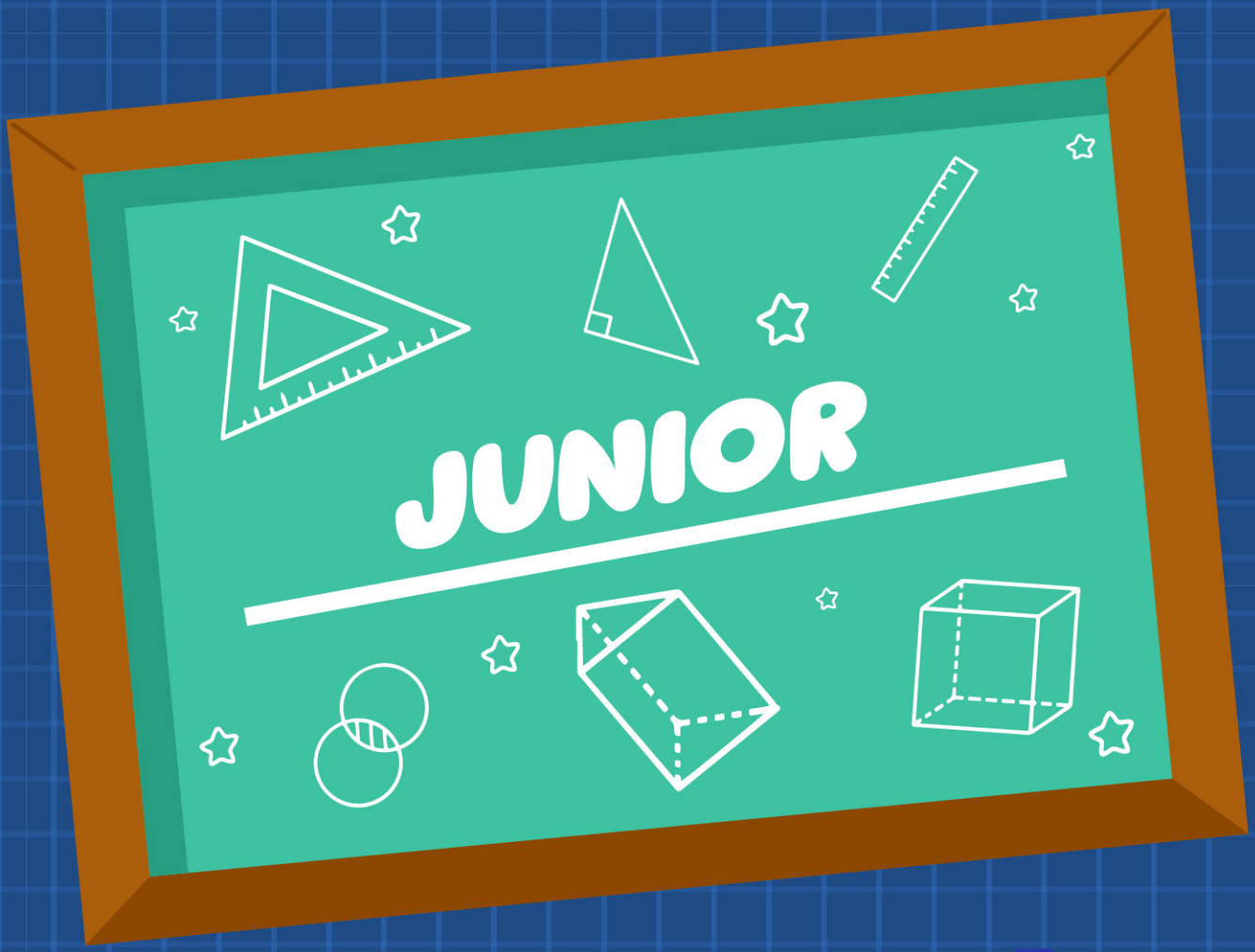


NAME:

Junior

3 points

1. Which of these expressions has the smallest value?

(**A**) $202 \div 6$ (**B**) 202.6 (**C**) $20 + 26$ (**D**) $202 - 6$ (**E**) 20×26

2. A palindromic number is a number that reads the same both forwards and backwards. Vasya's recent birthday, when written in the format of $DD.MM.YYYY$ is a palindromic number. In what month was Vasya born?

(**A**) January (**B**) February (**C**) September (**D**) October (**E**) November

3. Enas had 19 plums. During dinner, each of the five people in her family ate either 3 or 4 plums. How many people ate 4 plums?

(**A**) 1 (**B**) 2 (**C**) 3 (**D**) 4 (**E**) 5

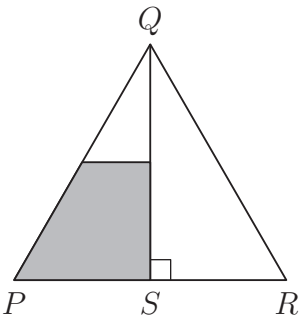
4. The number of the year 2026 has the following two properties: Exactly two of its four digits are equal and the sum of its digits is 10.

How many years in the 21st century have the same two properties?

(**A**) 1 (**B**) 2 (**C**) 3 (**D**) 4 (**E**) 5

5. Aleksandar draws an equilateral triangle PQR. The point S is the midpoint of PR. A line is drawn parallel to the base, PR, through the midpoint of QS.
What fraction of the triangle is the shaded part?

(**A**) $\frac{1}{8}$ (**B**) $\frac{3}{10}$
(**C**) $\frac{1}{4}$ (**D**) $\frac{3}{8}$
(**E**) $\frac{1}{3}$



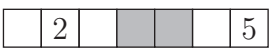
6. Abdul writes down a 7-digit number, $193391a$. His number is divisible by 6. What is the value of a?

(**A**) 0 (**B**) 2 (**C**) 4 (**D**) 6 (**E**) 8

7. What is the value of the expression $(1 - 2) - (3 - 4) - (5 - 6) - \ldots - (2025 - 2026)$?

(**A**) -1013 (**B**) -1011 (**C**) 1011 (**D**) 1013 (**E**) 2024

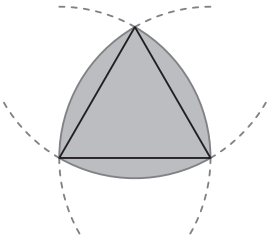
8. Cristina wants to write the numbers 1, 2, 3, 4, 5, 6 and 7 in the boxes in the diagram. She has already written two numbers, as shown. She wants the sum of the numbers in each pair of adjacent boxes to be odd, and to avoid the sum of the numbers in any three consecutive boxes being a multiple of 3.



What is the sum of the numbers she will write in the shaded boxes?

(**A**) 5 (**B**) 7 (**C**) 9 (**D**) 11 (**E**) 13

9. The diagram shows an equilateral triangle and three arcs, each centred at a different vertex of the triangle and with radius equal to the side-length of the triangle.
The side-length of the equilateral triangle is 2 cm. What is the perimeter of the shaded shape?



(**A**) π cm (**B**) 6 cm (**C**) 2π cm
(**D**) 8 cm (**E**) 4π cm

10. A farmer has dogs, sheep, goats, pigs and chickens on her farm. There are more chickens than pigs, more pigs than goats, more goats than sheep and more sheep than dogs. There are half as many dogs as chicken. The total number of animals is as small as it could be. How many animals are there on her farm?

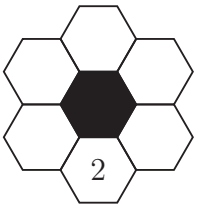
(**A**) 28 (**B**) 30 (**C**) 32 (**D**) 34 (**E**) 36

4 points

11. After a day trip through the Scottish Highlands, five hikers are covered in midge bites. They have 7, 9, 10, 13 and 14 bites. The total number of bites Anton and Linda have is three times the number of bites Kai has. The total number of bites Mia and Linda have is twice the number of bites Peter has.
How many bites does Linda have?

(**A**) 7 (**B**) 9 (**C**) 10 (**D**) 13 (**E**) 14

12. In this puzzle, the prime numbers 2, 3, 5, 7, 11 and 13 are to be written in the white hexagons. Numbers in adjacent white hexagons must **not** add to a prime number. The 2 is already in place. In how may ways can the puzzle be completed?

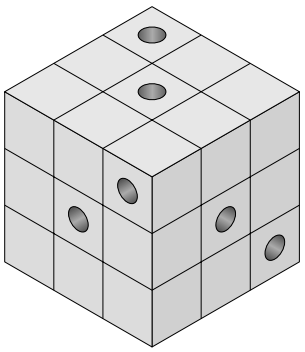


(**A**) 2 (**B**) 6 (**C**) 12
(**D**) 60 (**E**) 120

13. Fifteen points are equally spaced around a circle. How many regular polygons can be drawn by selecting the vertices of each polygon from these points?

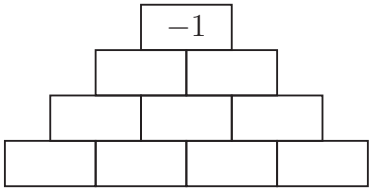
(**A**) 5 (**B**) 7 (**C**) 9 (**D**) 11 (**E**) 13

14. Six woodworms made their home in an old wooden cube made up of identical small cubes. Each one drilled a tunnel all the way through the cube, parallel to one of its edges. The diagram shows the entrances to the six tunnels. How many small cubes do **not** have a tunnel drilled through them?



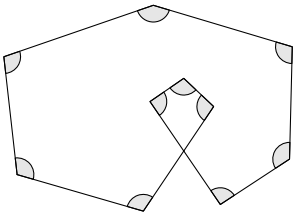
(**A**) 8 (**B**) 10
(**C**) 12 (**D**) 15
(**E**) 21

15. Ali wants to fill each cell with the number -1 or $+1$. Apart from the numbers in the bottom row, the number in each cell is equal to the product of the two numbers directly below it. The number in the topmost cell is -1, as shown. In how many different ways can Ali do this?



(**A**) 4 (**B**) 8 (**C**) 10 (**D**) 12 (**E**) 15

16. The diagram shows a shape with ten equal angles marked. What is the size of each of these angles?

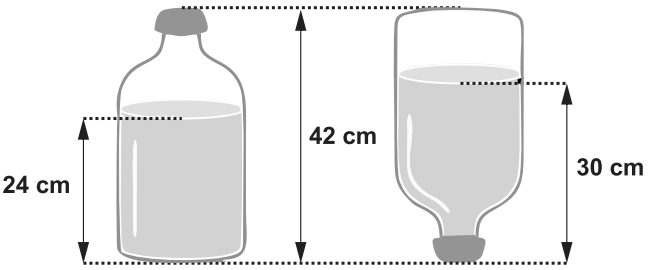


(**A**) 96° (**B**) 105° (**C**) 108°
(**D**) 115° (**E**) 120°

17. Five boys - Alan, Ben, Carl, David and Ernest - took part in a one-mile run. One of them didn't finish and the others finished at different times. When asked about the race some time later, they said:
Alan: "I was second or third."
Ben: "I got to the finish line and wasn't fourth."
Carl: "I was first."
David: "I was fourth."
Ernest: "I didn't make it to the finish line."
One of the boys lied and all the others told the truth. Which of the boys lied?

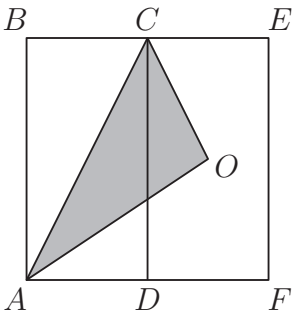
(**A**) Alan (**B**) Ben (**C**) Carl (**D**) David (**E**) Ernest

18. The diagram shows how the depth of water in a bottle changes when it is flipped upside down. The bottle's capacity is 4.5 liters and the entire water-filled part in the first diagram is cylindrical in shape.
What is the volume of water, in liters, in the bottle?



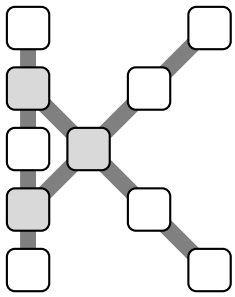
(**A**) 2.4 (**B**) 2.5 (**C**) 2.7 (**D**) 3.0 (**E**) 3.5

19. In the diagram, $ABCD$ and $DCEF$ are congruent rectangles and O is the center of rectangle $DCEF$. What fraction of the area of rectangle $ABEF$ is the area of triangle ACO?



(**A**) $\frac{1}{4}$
(**B**) $\frac{1}{2}$
(**C**) $\frac{1}{3}$
(**D**) $\frac{1}{5}$
(**E**) $\frac{2}{9}$

20. Jacob wants to place the numbers 1 to 10 in the boxes of this K-shaped grid shown.
He wants the sum of the numbers in each line of boxes - either 5 in a row vertically or 4 in a row diagonally - to be the same.
He also wants this sum to be as large as possible.
What will the numbers he places in the three shaded boxes add up to?



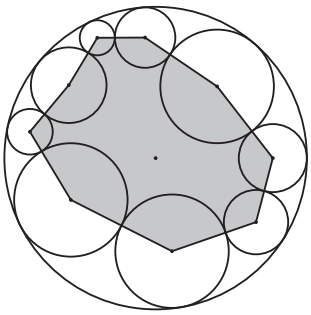
(**A**) 13 (**B**) 18 (**C**) 23 (**D**) 26 (**E**) 27

5 points

21. In the first round of a chess tournament, each player plays against every other player exactly once. A player gets 3, 1 or -1 points respectively for winning, drawing or losing a match. At the end of the first round, the sum of the scores of all the players is 90. How many players were there in the tournament?

(**A**) 5 (**B**) 8 (**C**) 10 (**D**) 12 (**E**) 15

22. The diagram shows a large circle of radius 10 and nine smaller circles, each tangential to two other small circles and also tangential to the large circle. The sum of the distances between centers of the smaller circles and the centre of the large circle, is equal to d.
What is the perimeter of the shaded polygon in terms of d?"



(**A**) $90 - 2d$
(**B**) $90 - d$
(**C**) $180 - d$
(**D**) $180 - 2d$
(**E**) $180 + 2d$

23. For two non-negative integers a and b, the equality $a^b - ab = 2026$ is true. What is the value of $a + b$?

(**A**) 10 (**B**) 13 (**C**) 15 (**D**) 1013
(**E**) 1015

24. Amber rides her penny-farthing through a small puddle, as shown in the picture below.

What might the track that she leaves behind look like?

(**A**) 

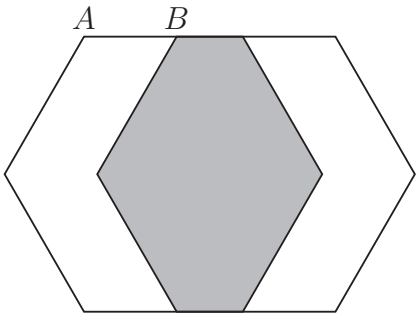
(**B**) 

(**C**) 

(**D**) 

(**E**) 

25. Two regular hexagons with side-lengths of 60 are shown in the diagram which is not drawn to scale. The right-hand hexagon was created by shifting the left-hand hexagon horizontally by the length of the segment AB. This creates three regions of equal area. What is the length of AB?



(**A**) 30 (**B**) 39

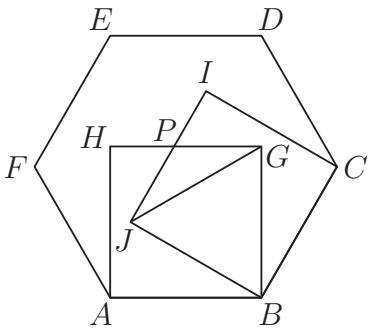
(**C**) 40 (**D**) 45

(**E**) 52

26. Ron has eight sticks with distinct integer lengths, no three of which are able to form a triangle. What is the shortest possible length of the longest stick?

(**A**) 32 (**B**) 33 (**C**) 34 (**D**) 35 (**E**) 36

27. Let $ABCDEF$ be a regular hexagon and let $ABGH$ and $BCIJ$ be squares inside the hexagon, as shown. Let P be the intersection point of segments GH and IJ. What is the ratio of the areas of triangles JGP and BGJ?

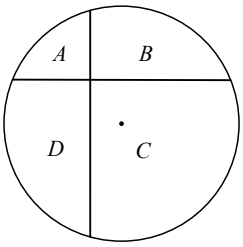


(**A**) 1 : 4 (**B**) $\sqrt{3}$: 6

(**C**) 1 : 3 (**D**) 2 : 5

(**E**) 1 : 2

28. Two perpendicular chords are drawn in a circle with radius 12 cm, dividing the circle into four regions, as labeled in the diagram. One chord lies 3 cm from the center, and the other lies 4 cm from the center. The sum of the areas of regions A and C is X cm^2 larger than the sum of the areas of regions B and D. What is the value of X?

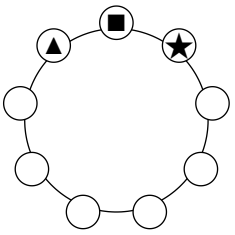


(**A**) 9 (**B**) 16 (**C**) 36 (**D**) 48 (**E**) 60

29. Charles and Paul alternate in taking toffees out of a box: Charles takes 1, then Paul takes 2, then Charles takes 3, then Paul takes 4, and so on. When there are not enough toffees to follow this pattern, the boy whose turn it is takes all of the remaining ones. At the end, Charles has 407 toffees. How many toffees were in the box at the beginning?

(**A**) 814 (**B**) 827 (**C**) 834 (**D**) 841 (**E**) 851

30. Ann places the digits $1, 2, \ldots, 9$ on a circle in some order. She reads three adjacent digits clockwise to form a three-digit number, such as ▲■★ as in the diagram, and writes down all nine such numbers. One of these numbers is a, which is a factor of the sum of the remaining 8 numbers. How many possible values of a are there?



(**A**) 1 (**B**) 2 (**C**) 3 (**D**) 4 (**E**) 5

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