Mathematica Centrum

Together, let's shape the mathematicians of the future

PYTHAGORAS PREPARATORY TEST 2026

1. The number of vertices of a triangular pyramid is

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

2. (3 + 3) x (2 + 4) = ?

A) 12 B) 36 C) 10 D) 25 E) 30

3. Which number is a multiple of 6?

A) 14 B) 13 C) 24 D) 74 E) 34

4. The value of x in the equation 36 - 12 = x + 4 is

A) 11 B) 10 C) 30 D) 20 E) 36

5. The greatest common factor of 10 and 25 is

A) 10 B) 1 C) 5 D) 2 E) 6

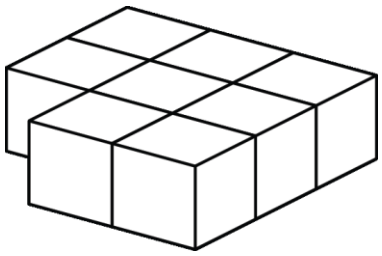
6. The number of sides + the number of diagonals + the number of lines of symmetry in a square is equal to

A) 9 B) 8 C) 11 D) 10 E) 12

7. The product of 25 x 10 x 2 is

A) 100 B) 400 C) 10 000
D) 200 E) 500

8. Eight blocks have been glued together as shown in the diagram. How many faces of these blocks have glue on them?



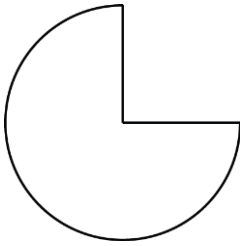
A) 20 B) 24 C) 18
D) 22 E) 16

9. Mathew has bought 2¢ and 3¢ stamps for a total of 40¢. The number of 3¢ stamps that he has bought could be

A) 5 B) 7 C) 13 D) 10 E) 14

10. The result of 2 x 7 - 11 x 1 is

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



11. What fraction of the pie has not been eaten?

A) 3/4 B) 1/5 C) 1/6
D) 1/7 E) 1/8

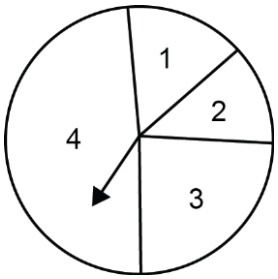
12. How many of the following numbers: 1, 2, 3, and 4 are common divisors of 8 and 12?

A) 1 B) 2 C) 3 D) 4 E) 0

13. The value of 20 mm + 10 cm + 10 dm is

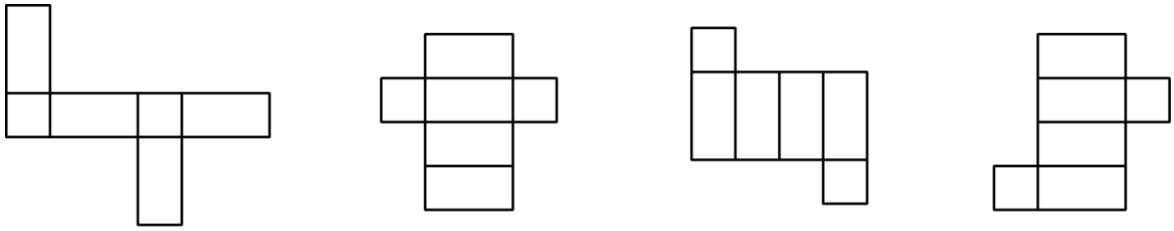
A) 30 cm B) 11 dm C) 110 mm D) 111 cm E) 112 cm

14. Mathilda has made a circular spinner. If she spins this spinner 100 times, which of the following best represents approximately the number of times she could expect to get a 4?



A) 30 times B) 50 times C) 60 times
D) 40 times E) 20 times

15. How many of the following 4 nets cannot form a rectangular prism?



I II III IV

A) 0 B) 1 C) 2 D) 3 E) 4

16. Each time that Melissa pours 45 ml of water in a beaker, Andrea pours 40 ml in it. The order in which they pour the water in the beaker is given by the sequence: A-M, M-A, A-M, M-A … (the first time, Andrea pours the water first, followed by Melissa, the second time, Melissa pours the water first, followed by Andrea and so on as determined by the sequence). How many times can Andrea pour the 40 ml of water completely in the 1 000 ml beaker without the water overflowing?

A) 9 times B) 8 times C) 10 times D) 11 times E) 12 times

17. When a natural number is divided by 6, the remainder is odd. This number could be

A) 14 B) 36 C) 43 D) 50 E) 16

18. The product of 3 consecutive natural numbers is 504. The cube of the largest is equal to

A) 343 B) 729 C) 512 D) 816 E) 820

19. Mathilda leaves from her home. She travels 2 km north, 3 km east, 3 km south, and finally 3 km west. At what distance from her home does she end her journey?

A) 3 km B) 4 km C) 2 km D) 0 km E) 1 km

20. A fence surrounds a piece of land that is a perfect square. If the perimeter of the fence is 256 m, what is the length of one of its sides?

A) 46 m B) 54 m C) 56 m D) 66 m E) 64 m

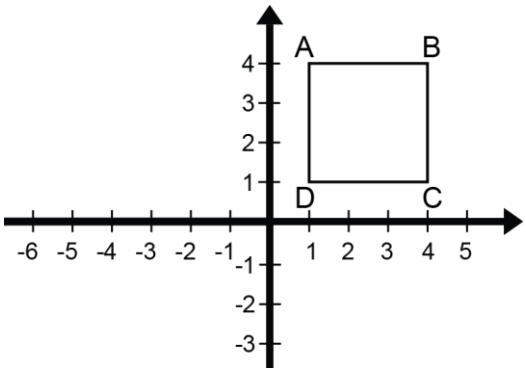
21. Mathew waxes a car 2 times faster than Andrea. If Andrea takes 24 minutes to wax the car, how much time will they take together to wax the same car?

A) 9 minutes B) 8 minutes C) 12 minutes D) 11 minutes E) 10 minutes

22. The ones digit of the following product: 12 x 11 x 10 x 9 x 8 is

A) 0 B) 1 C) 4
D) 3 E) 2

23. ABCD is a square. What are the coordinates of the image of vertex C, if the square is moved (translation) 5 units to the left, then 1 unit down?



A) (0 , -1) B) (-2 , 0) C) (0 , -2)
D) (-1 , -1) E) (-1 , 0)

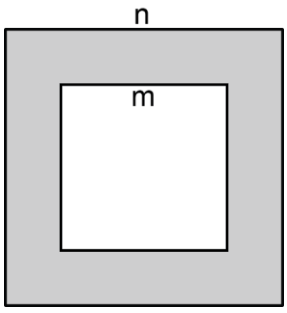
24. For a few years, on my birthday, my mother has deposited $3 000 in my bank account. Today is my birthday (I am 10 years old) and my mother has made another deposit of $3 000. After this deposit, I realise that I have a total of $9 000 in my account. What will the total be (in thousands of $) when I will be ‘’n’’ years old, if my mother continues to deposit $3 000 on each birthday?

A) (n - 10) + 9 B) 9 + (n - 10) x 3 C) (10 - n) x 3 D) (10 - n) x 3 + 9 E) 9 + 3 x n

25. Which of the following is not a prime number?

A) 33 B) 13 C) 23 D) 43 E) 53

26. Letters m and n are natural numbers representing the lengths (in centimetres) of the sides of two squares. We know that m is an even number smaller than 10 and that the area of the shaded space between the 2 squares is 64 cm^2. What is the value of n?



A) 12 cm B) 6 cm C) 10 cm
D) 14 cm E) 8 cm

27. The number of sides of a quadrilateral, plus the number of sides of a pentagon, plus the number of sides of a decagon is equal to

A) 15 B) 16 C) 17 D) 18 E) 19

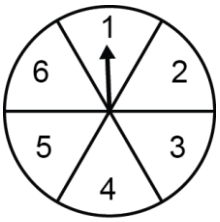
28. What is the value of m in the following equation: 3 x 14 = 21 x m?

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

29. A natural number is equal to 49 times its reciprocal. This number is

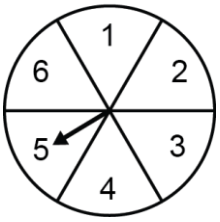
A) 3 B) 4 C) 5 D) 6 E) 7

30. Mathusalem has red and black cards. The number of red cards represents 3/5 of his black cards (he has 3 red cards for every 5 black cards). If he gets 6 more red cards, he will have just as many red cards as black cards. How many black cards does he have?



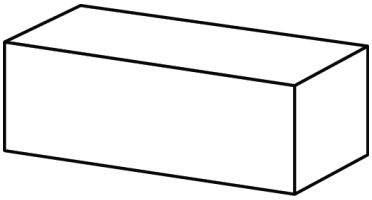
A) 18 B) 9 C) 15
D) 21 E) 12

31. Two spinners are used in an experiment. You spin the two spinners and write as a pair, the numbers obtained. If the result of the first spinner is a 1 and the result of the second is a 5, the outcome is represented by the pair (1,5). What is the probability that the outcome is a pair where the sum of the two numbers is 5 or less?



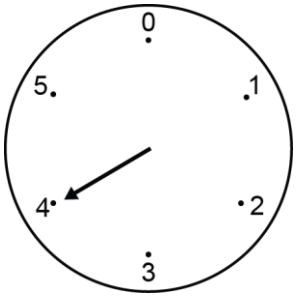
A) 1/9 B) 5/18 C) 1/3
D) 2/9 E) 1/4

32. The measures of a rectangular solid are 3 cm x 3 cm x 8 cm. What is the total area of this solid?



A) 136 cm^2 B) 122 cm^2 C) 126 cm^2
D) 114 cm^2 E) 124 cm^2

33. Using the clock in the diagram, we can write the following equations: 4 + 2 = 0, 5 + 3 = 2, 2 - 2 = 0, 1 - 3 = 4, 2 x 4 = 2, 5 x 3 = 3. What is the value of the following expression: 2 x 4 + 2 x 5?

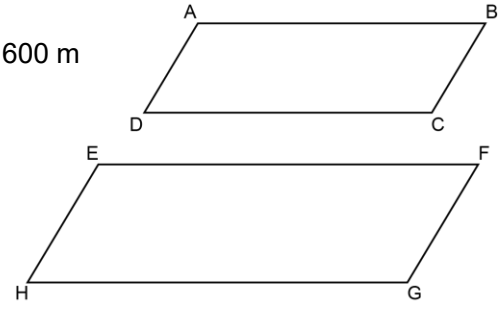


A) 0 B) 1 C) 2
D) 3 E) 4

34. What is the distance covered, in 2 minutes, by a race horse that runs at an average speed of 36 km/h?

A) 1 400 m B) 960 m C) 1 600 m
D) 1 200 m E) 1 800 m

35. The diagram on the right is made of 2 parallelograms. Line segment AB is parallel to line segment EF. How many pairs of parallel line segments can you count in this diagram?



A) 12 pairs B) 10 pairs C) 8 pairs D) 16 pairs E) 14 pairs