Mathematica Centrum

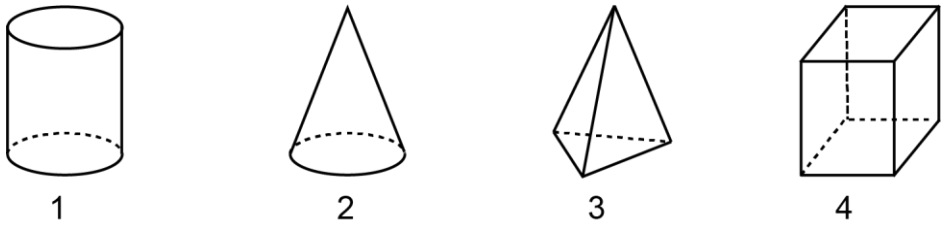
Together, let's shape the mathematicians of the future

BYRON-GERMAIN PREPARATORY 2023

1. 21 + 22 = ?

A) 45 B) 43 C) 42 D) 41 E) 44

2. The number of flat faces of solids 1, 2, and 4 is equal to



A) 11 B) 12 C) 13 D) 9 E) 10

3. Sixty-three + twenty-five is equal to

A) 90 B) 95 C) 88 D) 85 E) 75

4. The sum of 10 +11 +12 is

A) 33 B) 35 C) 38 D) 37 E) 34

5. How many pencils costing 40¢ each can you buy with $2?

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

6. What number is 10 times greater than the number that is 5 times smaller than 5?

A) 15 B) 9 C) 12 D) 8 E) 10

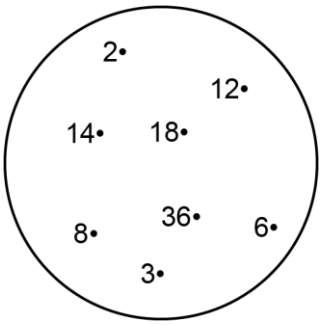
7. 20 nickels = 2 quarters + 2 dimes + ? nickels.

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

8. What is the perimeter of a rectangle whose length is 15 cm and width is 5 cm?

A) 40 cm B) 15 cm C) 25 cm
D) 35 cm E) 30 cm

9. How many elements of the set shown are divisors of 18?

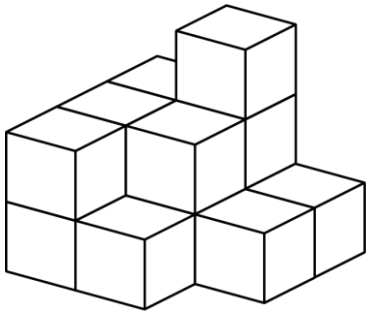


A) 2 B) 6 C) 3
D) 4 E) 5

10. The 10^{th} term in the sequence: 0, 2, 4, 6, 8, 10, 12, … is

A) 24 B) 26 C) 18
D) 20 E) 22

11. How many blocks in the pile are visible?



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

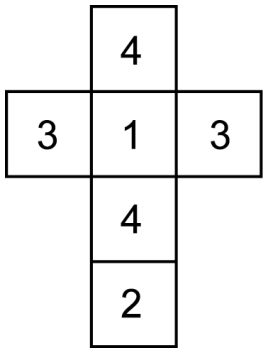
12. The number of faces of a cube plus the number of edges of a cube is equal to

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

13. A natural number **mnpq** is made of 4 different digits: m, n, p, and q. Find the largest number **mnpq** in which m is greater than p and n is greater than q. What is the sum of m + q?

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

14. The missing number in the equation: 1 + 4 + 7 + 10 = 11 x ? is



A) 5 B) 2 C) 3
D) 4 E) 6

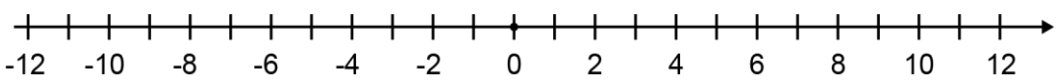
15. The 6 faces of a die are numbered, as shown in the diagram. What is the probability of getting a number which is a divisor of 12 when the die is thrown once?

A) 1 B) 1/6 C) 2/6
D) 3/6 E) 4/6

16. Mathew is 15 years old and Mathilda, 3 years younger. What was Mathilda's age 3 years ago?

A) 6 years old B) 7 years old C) 8 years old D) 9 years old E) 10 years old

17. The initial temperature in a city was -4 degrees. If the temperature decreased by 2 degrees each day for 6 consecutive days, then increased by 3 degrees each day for 5 consecutive days, what was the final temperature after 11 days?



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

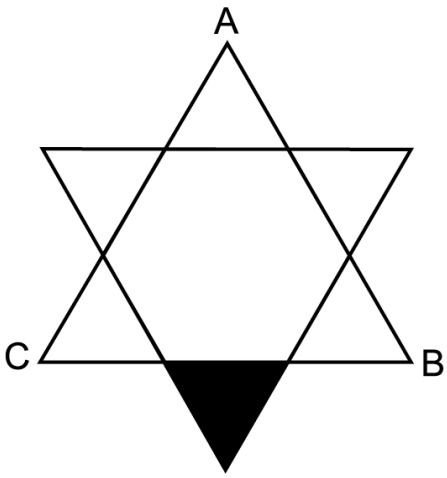
18. The number that is equal to 12 tens plus 10 ones is

A) 110 B) 90 C) 120 D) 100 E) 130

19. I buy hockey cards for $70 and sell them the next day for $90. What is my profit?

A) $25 B) $50 C) $30
D) $40 E) $20

20. What is the area of the small shaded equilateral triangle, if the area of the large equilateral triangle ABC is 27 cm²?

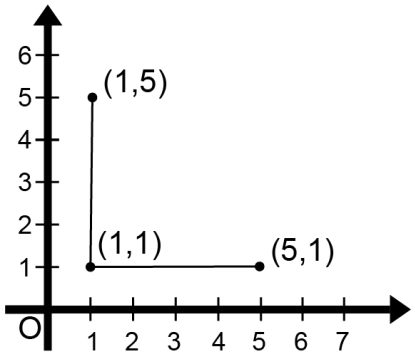


A) 5 cm² B) 4 cm² C) 3 cm²
D) 2 cm² E) 1 cm²

21. A period of time of 2 hours and 10 minutes is how many times longer than a period of time of 2 minutes and 10 seconds?

A) 90 times B) 60 times C) 120 times
D) 80 times E) 100 times

22. The points (1, 5) and (1, 1) are on the same vertical line. The points (1, 1) and (5, 1) are on the same horizontal line. How many of the following points: (2, 0), (2, 4), (2, 6), (6, 4), and (1, 4) are on the same vertical line?



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

23. The ones' digit of 1! + 2! + 3! + 4! is

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