

Mathematica Centrum

Together, let's shape the mathematicians of the future

PYTHAGORAS PREPARATORY TEST 2020

1. $734 - 530 = ?$

- A) 234 B) 204 C) 304 D) 230 E) 332

2. A number divided by 4 gives 4. If 5 is subtracted from this number, the result will be

- A) 10 B) 15 C) 12 D) 11 E) 14

3. The fifth letter after the ninth letter of the alphabet is the letter

- A) m B) n C) o D) p E) q

4. What is the sum of the two unknown terms (X and Y) in the sequence: 5, 10, 15, 20, X, Y, 35 ...?

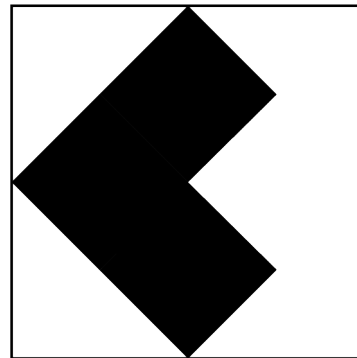
- A) 40 B) 50 C) 55
D) 60 E) 45

5. 10 nickels = 2 quarters + ? dimes.

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

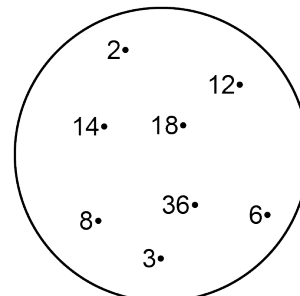
6. What fraction of the large square does the shaded area represent?

- A) $\frac{6}{16}$ B) $\frac{7}{16}$ C) $\frac{1}{4}$
D) $\frac{5}{16}$ E) $\frac{3}{16}$



7. How many elements of the set shown are divisors of 36?

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

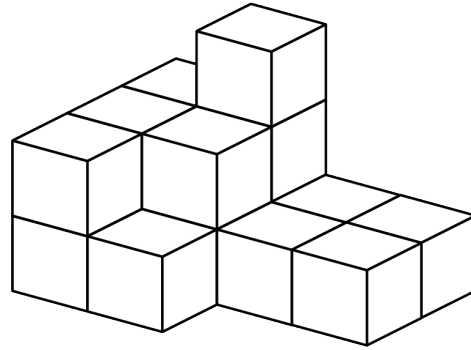


8. One half of one half of 20 plus 3 is equal to

- A) 7 B) 8 C) 9
D) 11 E) 10

9. How many blocks are there in the pile?

- A) 10 B) 12 C) 16
D) 13 E) 14

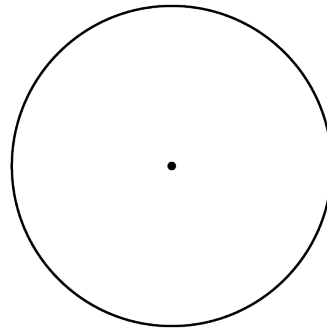


10. The number of faces of a cube plus the number of vertices of a cone plus the number of sides of a hexagon is equal to

- A) 12 B) 13 C) 11
D) 10 E) 14

11. How many odd 3-digit natural numbers can be formed using the digits 2, 7, and 8?

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



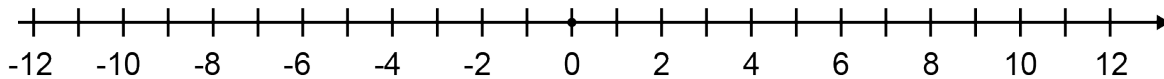
12. A round pizza is cut through its centre. How many pieces of pizza can be eaten, if it is cut 8 times?

- A) 8 B) 16 C) 14
D) 12 E) 18

13. 10 cm = ? dm

- A) 100 B) 50 C) 1 000 D) 1 E) 10

14. The initial temperature in a northern city was 9 degrees. If the temperature decreased by 2 degrees each day for 6 consecutive days, then increased by 3 degrees each day for 3 consecutive days, what was the final temperature after 9 days?



- A) 0 degree B) -3 degrees C) -2 degrees D) 5 degrees E) 6 degrees

15. How many natural numbers between 99 and 150 are odd?

- A) 23 B) 24 C) 25 D) 26 E) 27

16. If a heart beats 10 times in 5 seconds, how many times does it beat in 1 minute?

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

17. When a natural number is divided by 3, the remainder is odd. This number could not be

- A) 16 B) 5 C) 13 D) 10 E) 7

26. An animal breathes for 2 minutes, then stops breathing for 3 minutes. When it breathes, it breathes at a rate of 60 times per minute. At this rate, how many times will it breathe during a period of one hour?

- A) 1 840 times B) 10 800 times C) 800 times D) 2 000 times E) 1 440 times

27. How many prime numbers between 1 and 40 have a ones digit that is a 3?

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

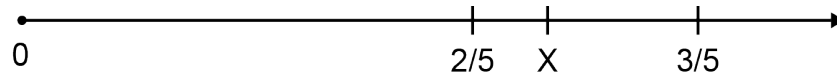
28. If $n \times 10\% = 30$, what is the value of n ?

- A) 200 B) 250 C) 340 D) 300 E) 3 000

29. What is the average of 0, 1, 2, 3, and 4?

- A) 2 B) 3.5 C) 4 D) 2.8 E) 3

30. What fraction X lies at $\frac{3}{8}$ of the distance between $\frac{2}{5}$ and $\frac{3}{5}$?

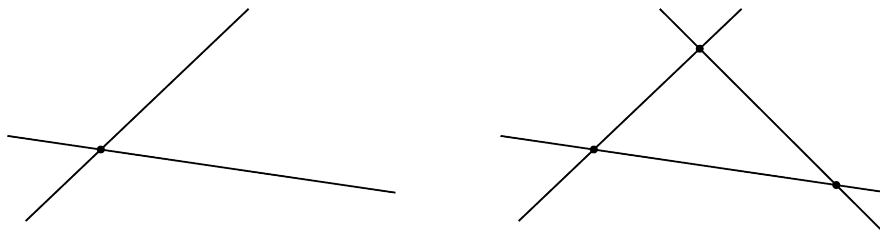


- A) $\frac{1}{2}$ B) $\frac{17}{40}$ C) $\frac{9}{20}$ D) $\frac{9}{25}$ E) $\frac{19}{40}$

31. Which of the following has the least number of factors?

- A) 10 B) 12 C) 14 D) 15 E) 17

32. The maximum number of points at which 2 straight lines can intersect is 1. Three straight lines can intersect at a maximum of 3 points. What is the maximum number of points at which 4 straight lines can intersect?



- A) 4 B) 5 C) 6 D) 7 E) 8

33. What is the largest prime factor of the product $6 \times 8 \times 10$?

- A) 2 B) 5 C) 3 D) 7 E) 8