Mathematica Centrum
Together, let's shape the mathematicians of the future

THALES 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 …?
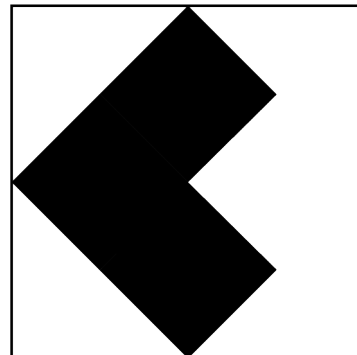
A) 40   B) 50   C) 55
D) 60   E) 45

5. 10 nickels = 2 quarters + ? dimes.

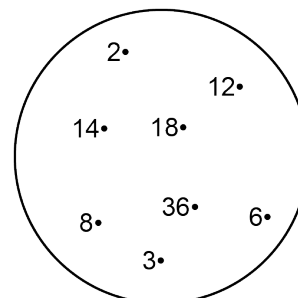A) 1   B) 4   C) 3
D) 2   E) 0

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

A) 6/16   B) 7/16   C) 1/4
D) 5/16   E) 3/16

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

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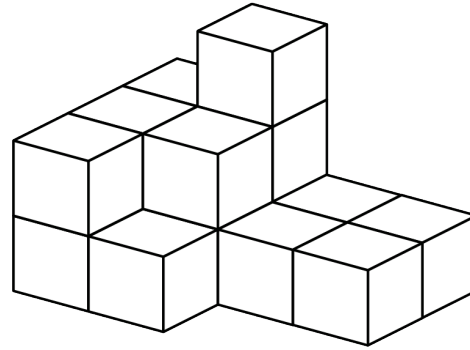D) 6   E) 5

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
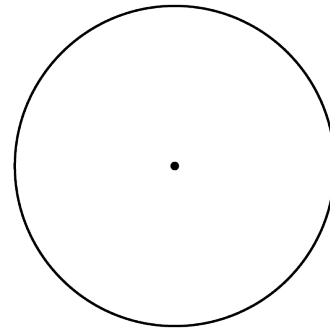D) 13   E) 14

10. The number of faces of a cube plus the number of vertices of a cone plus the number of sides of an 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?
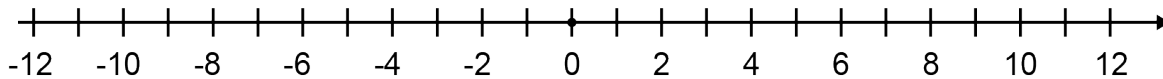
A) 4   B) 5   C) 3
D) 2   E) 6

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

18. Use the information below to find the unknown value.

$$\sqrt{4} = 2, \ \sqrt{9} = 3, \ \sqrt{16} = 4, \ \sqrt{25} = \ ?$$

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

19. With 2 oranges, you can prepare 120 ml of juice. How many oranges do you need to prepare 720 ml of juice?

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

20. How many of the following points: (2, 0), (2, 4), (4, 6), (6, 4), and (3, 3) are on the same vertical straight line?

A) 2 B) 3 C) 4
D) 5 E) 0