Mathematica Centrum

Together, let's shape the mathematicians of the future

FIBONACCI PREPARATORY TEST 2022

1. 10 + 5 x 2 = ?

A) 20 B) 44 C) 32 D) 22 E) 30

2. The number of faces of a cube plus the number of edges of a triangular pyramid is equal to

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

3. 2 x 5 + 3 x 5 = ?

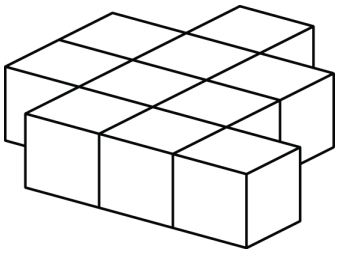
A) 65 B) 80 C) 18 D) 5 x 5 E) 22

4. Which of the following is a multiple of 4 and 6?

A) 32 B) 16 C) 12 D) 15 E) 25

5. Six times one third the value of 12 is equal to

A) 12 B) 15 C) 14
D) 10 E) 24

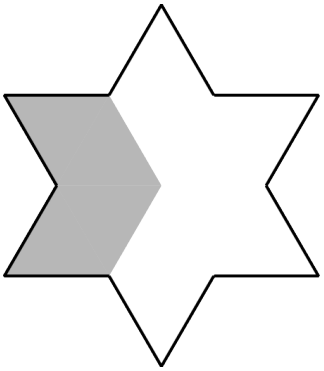


6. Ten blocks have been glued together as shown in the diagram. How many faces of these blocks do not have glue on them?

A) 24 B) 36 C) 25
D) 23 E) 32

7. The tens digit of the product of 4 x 15 is

A) 6 B) 5 C) 1
D) 0 E) 2



8. Mathilda has 5 coins in her hand, none of which are pennies. If only one of these coins is a nickel, what is the least amount of money she can have in her hand?

A) 25¢ B) 30¢ C) 20¢
D) 45¢ E) 50¢

9. What fraction of the polygon is shaded?

A) 2/3 B) 1/3 C) 1/2 D) 5/6 E) 3/7

10. When a number is tripled and 3 is subtracted, we get a result of 12. What is the number?

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

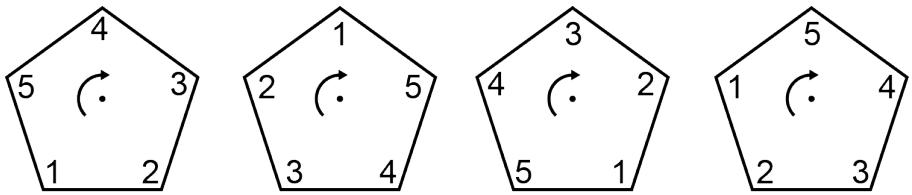
11. 4 hundreds = 10 tens + ? hundreds

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

12. What is the remainder of the division 30 ÷ 8?

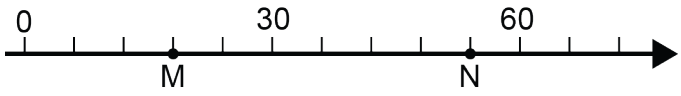
A) 2 B) 4 C) 5 D) 3 E) 6

13. The pentagons in the diagram form a sequence. The rotation around the centre (in the direction shown by the arrow) that can generate this sequence is a rotation of



A) 1/5 of a turn B) 4/5 of a turn C) 2/5 of a turn D) 5/5 of a turn E) 3/5 of a turn

14. What is the length of segment MN (distance between points M and N on the number line)?

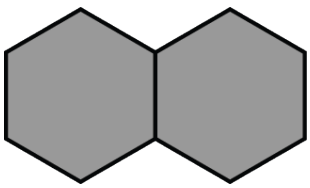


A) 44 B) 36 C) 42 D) 34 E) 40

15. What is the smallest natural number that, when multiplied by 7, gives a result greater than 100?

A) 17 B) 18 C) 14 D) 15 E) 16

16. How many hexagons must be drawn to completely surround the 2 shaded hexagons?



A) 6 B) 5 C) 9
D) 8 E) 7

17. The missing number in the sequence: 64, 32, ? , 8, 4 is

A) 0 B) 16 C) 18
D) 24 E) 20

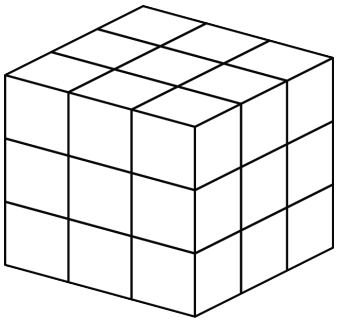
18. Which of the following will yield a product that has the largest units digit?

A) 3 x 3 x 3 B) 3 x 5 x 5 x 6 C) 11 x 11 x 11 D) 2 x 3 x 5 E) 1 x 2 x 3 x 4

19. The value of (1 + 2 + 3 + … + 20) is 210. What is the value of (3 + 6 + 9 + … + 60)?

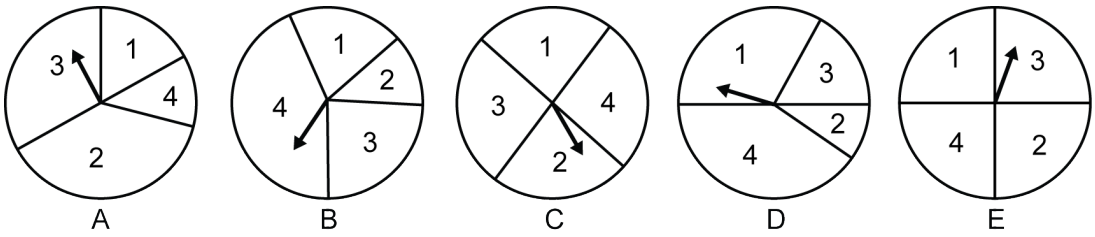
A) 693 B) 690 C) 660
D) 687 E) 630

20. A large wooden cube is painted and then divided into 27 smaller cubes (see diagram). How many of these small cubes have 1 or 3 faces that are covered with paint?

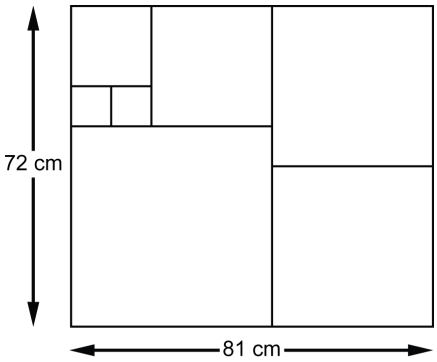


A) 12 B) 18 C) 14
D) 20 E) 22

21. Which spinner would you choose to increase your chances of getting a 1 or a 2?



22. Mathew has used square tiles to cover a rectangular surface of 81 cm x 72 cm. What is the length of the side of the smallest tile he has used?



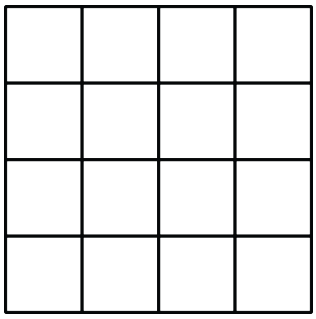
A) 8 cm B) 9 cm C) 7 cm
D) 5 cm E) 6 cm

23. I am a prime number that is a factor of 5 and 15. Multiplied by myself, I give a product of

A) 16 B) 9 C) 25
D) 49 E) 4

24. How many natural numbers between 50 and 100 are perfect squares?

A) 3 B) 8 C) 2
D) 5 E) 6



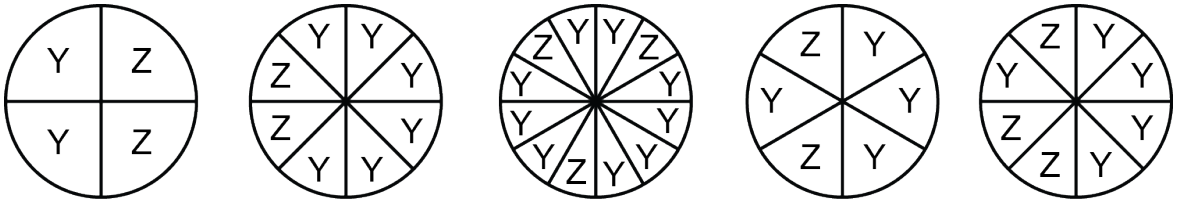
25. The sum of 3! + 3! + 3! is equal to

A) 16 B) 30 C) 27
D) 28 E) 18

26. How many different 3 x 3 squares can you count in the diagram?

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

27. The probability of getting a Z is the same for two of the following 5 spinners. What is this probability?



A) 5/8 B) 2/3 C) 3/8 D) 1/2 E) 1/4

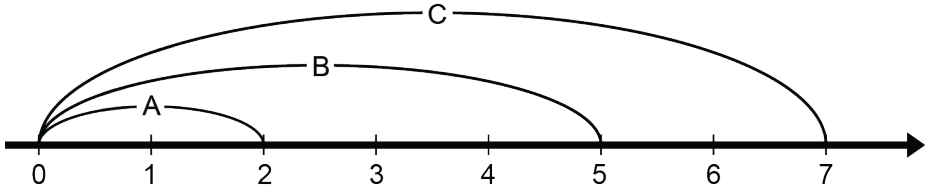
28. How many 9's are used when the number $10^3 - 9$ is written as a natural number?

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

29. A farmer has only chickens and rabbits. There are 2 times as many rabbits as there are chickens and we can count a total of 150 legs. How many animals (chickens and rabbits) does he have on his farm?

A) 45 B) 36 C) 40 D) 48 E) 44

30. Three grasshoppers A, B, and C are jumping along the number line. The lengths of their jumps are shown in the diagram below. What is the smallest natural number on which all three will land as they move along the number line?



A) 56 B) 105 C) 60 D) 70 E) 75