Mathematica Centrum

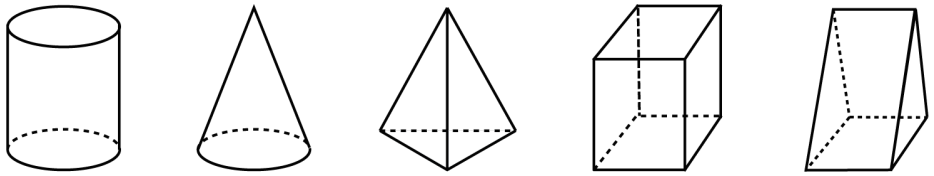
Together, let's shape the mathematicians of the future

PYTHAGORAS PREPARATORY TEST 2017

1. 3 + 1 + 6 = ?

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

2. Which solid has 4 flat faces, 6 edges and 4 vertices?



3. Which product has the smallest ones digit?

A) 1 x 2 x 3 B) 3 x 4 x 5 C) 6 x 7 x 8 D) 7 x 9 x 11 E) 9 x 11 x 13

4. 20 ÷ (7 - 5) = ?

A) 10 B) 6 C) 8 D) 12 E) 9

5. How many odd number are there between 19 and 31?

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

6. The value of X in the equation: 512 = 317 + X is

A) 192 B) 193 C) 194 D) 195 E) 196

7. Round 10 777 to the nearest thousand. The answer is

A) 10 800 B) 11 000 C) 10 700 D) 10 999 E) 9 000

8. 10 nickels = ? quarters.

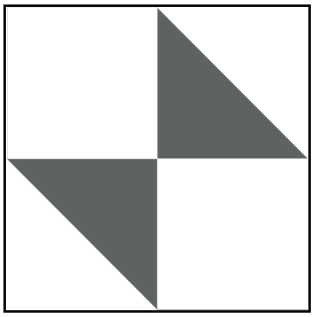
A) 10 B) 6 C) 3 D) 4 E) 2

9. Andrea counted backwards from 30 by 3's. How many of the following numbers: 8, 12, 14, 21, and 27 were not counted by Andrea?

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

10. An answering machine can store 10 minutes of messages. How many 20 second messages could it store?

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



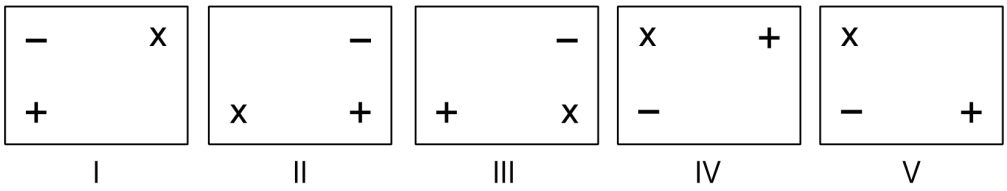
11. How many natural numbers between 7 and 77 are multiples of 7?

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

12. What fraction of the figure is shaded?

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

13. Which two figures are rotation images of each other?



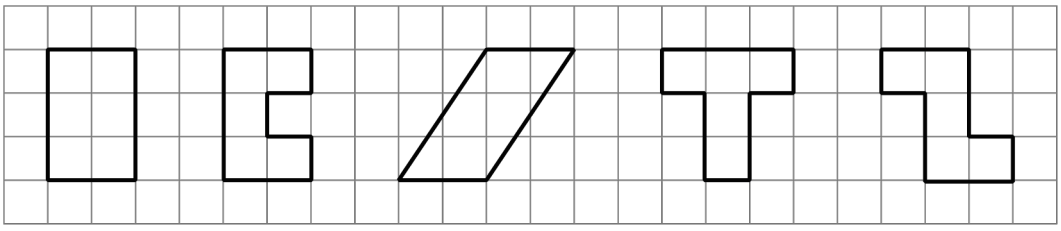
I II III IV V

A) II et III B) II et IV C) I et III D) V et IV E) III et 1V

14. 1 dm + 20 mm is equal to

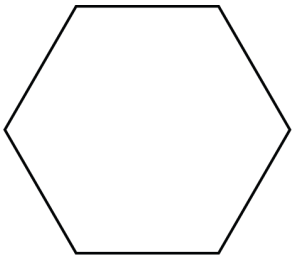
A) 10 cm B) 8 cm C) 110 mm D) 12 cm E) 90 mm

15. Given that the side of a small square is 1, how many of the following have a perimeter of 12?



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

16. The number of lines of symmetry plus the number of diagonals in the diagram opposite is equal to

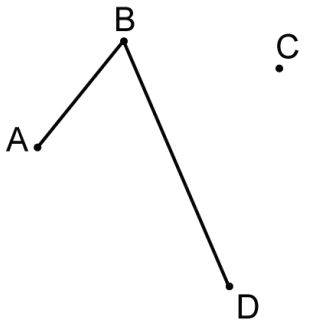


A) 15 B) 16 C) 13
D) 14 E) 12

17. How many 4-digit natural numbers between 1 000 and 4 000 have the same digits as 1 234 (including 1 234)?

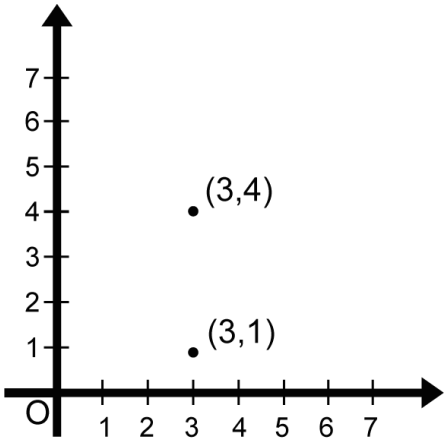
A) 10 B) 16 C) 14
D) 18 E) 12

18. How many line segments (like AB and BD) can you draw using the 4 points in the diagram?



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

19. Two vertices of a rectangle, whose width is 2, are shown in the diagram. Which of the following could not represent the coordinates of one of the other two vertices of the rectangle?



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

20. If 3 + 6 + 9 + 12 + 15 + …+ 300 = 15 150, then 9 + 18 + 27 + 36 + 45 + … + 900 is equal to

A) 45 300 B) 46 450 C) 45 450
D) 46 050 E) 46 300

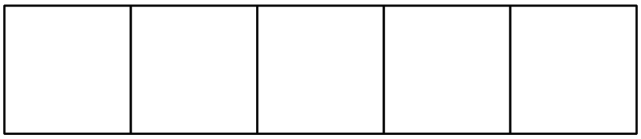
21. You have 24 square cartons. Each carton has an area of 1 cm^2. How many different rectangles, with a 24 cm^2 area, can you form?

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

22. If 1 tic = 3 tocs and 1 toc = 3 tacs, then 3 tics are equal to how many tacs?

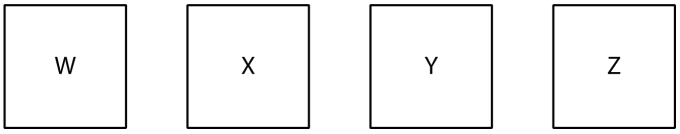
A) 24 B) 30 C) 27 D) 25 E) 28

23. A square table can sit 4 people. If you line up 5 square tables, as shown in the diagram, you can sit 12 people. If 100 square tables were lined up in the same manner, how many people could you sit?



A) 201 B) 202 C) 204 D) 203 E) 206

24. Four friends W, X, Y, and Z are walking in a straight line, but not in the order shown. Y is not second. X is right behind Y. Z is right behind W, who is not third. Who is third?



A) Y B) W
C) Z D) X E) Impossible to say

25. Andrea has chosen 3 different natural numbers between 1 and 10. Their product is 36. The sum of these three numbers is

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

26. The ones' digit of 2^8 is

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

27. If 3/10 of a number is equal to 1/2, what is the number?

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

28. The average of the two prime numbers closest to 42 is

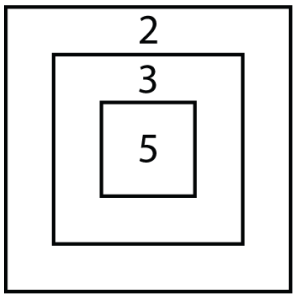
A) 45 B) 42 C) 48 D) 43 E) 40

29. Which of the following is not like the other four?

A) 21 B) 35 C) 30 D) 70 E) 49

30. Mathew's car is travelling at 100 km/h. What distance can it cover in 90 minutes?

A) 160 km B) 200 km C) 140 km
D) 180 km E) 150 km



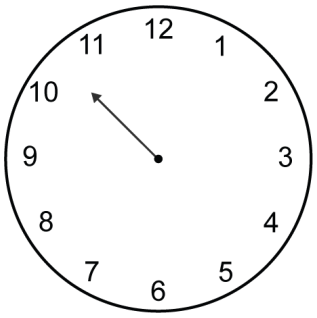
31. The target is composed of three different areas: two rectangular areas and one central square. The number written in each area indicates the number of points scored when that area is hit. Mathusalem had seven shots and each shot hit the target. If Mathusalem scored 28 points, how many times did he hit the 3-point area?

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

32. A second is what fraction of a minute?

A) 1/72 B) 1/12 C) 1/60 D) 1/30 E) 1/24

33. The clock shown in the diagram has just lost its minute hand. At what time, approximately, did it lose it?



A) 10:00
B) 10:22
C) 10:05
D) 10:45
E) 10:30