Mathematica Centrum

Together, let's shape the mathematicians of the future

BYRON-GERMAIN PREPARATORY TEST 2013

1. The number of faces of a triangular pyramid is

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

2. 3 x 2 x 3 x 2 = ?

A) 12 B) 36 C) 10 D) 25 E) 30

3. Which number is a multiple of 4?

A) 14 B) 13 C) 24 D) 74 E) 34

4. 11 x 3 = ? + 3

A) 11 B) 10 C) 30 D) 20 E) 36

5. 10 x 2 ÷ 5 x 2 = 4 x ?

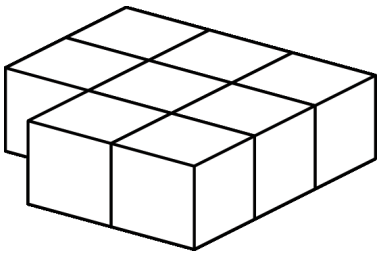
A) 2 B) 3 C) 4 D) 8 E) 5

6. The number of sides + the number of vertices + the number of lines of symmetry in a square is equal to

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

7. The product of 50 x 10 x 2 is

A) 1 000 B) 100 C) 10 000
D) 2 000 E) 500



8. Eight blocks have been glued together as shown in the diagram. How many faces of these blocks have no glue on them?

A) 32 B) 24 C) 30
D) 28 E) 26

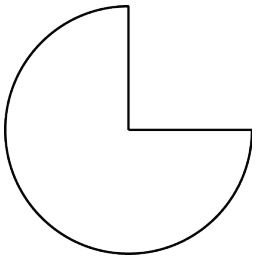
9. Mathilda has bought 2¢ and 3¢ stamps for a total of 40¢. The number of 3¢ stamps that she has bought could be

A) 15 B) 7 C) 13 D) 12 E) 16

10. The result of 3 x 8 - 11 x 2 is

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

11. What fraction of the pie has been eaten?



A) 1/4 B) 1/5 C) 1/6
D) 1/7 E) 1/8

12. How many of the following numbers: 1, 2, 3, 4, and 5 are common divisors of 10 and 12?

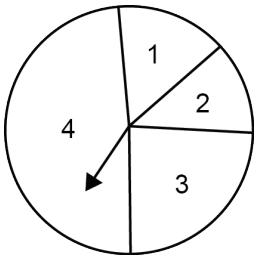
A) 1 B) 2 C) 3 D) 4 E) 5

13. The value of 10 mm + 10 cm + 10 dm is

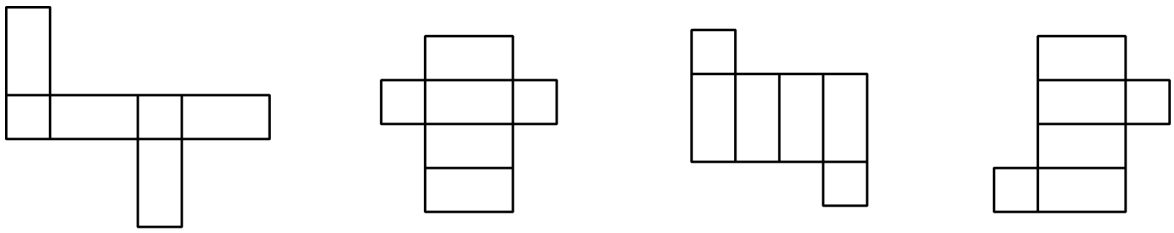
A) 30 cm B) 11 dm C) 110 mm D) 111 cm E) 1 m

14. Mathew has made a circular spinner. If he spins this spinner 1 000 times, which of the following best represents approximately the number of times he could expect to get a 3?

A) 100 times B) 500 times C) 650 times
D) 750 times E) 250 times



15. How many of the following 4 nets can form a rectangular prism?



I II III IV

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

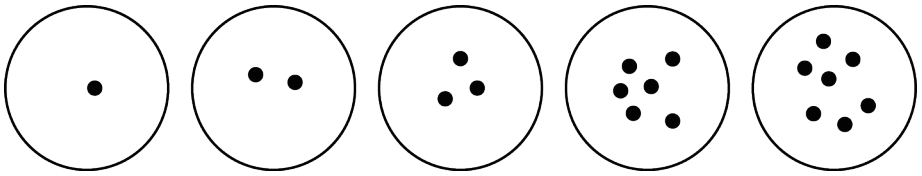
16. Each time that Melissa pours 45 ml of water in a beaker, Andrea pours 40 ml in it. The order in which they pour the water in the beaker is given by the sequence: A-M, M-A, A-M, M-A … (the first time, Andrea pours the water first, followed by Melissa, the second time, Melissa pours the water first, followed by Andrea and so on as determined by the sequence). How many times can Andrea pour the 40 ml of water completely in the 1 000 ml beaker without the water overflowing?

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

17. When a natural number is divided by 6, the remainder is odd. This number could be

A) 12 B) 38 C) 53 D) 50 E) 14

18. How many dots must the next circle have to continue the sequence?

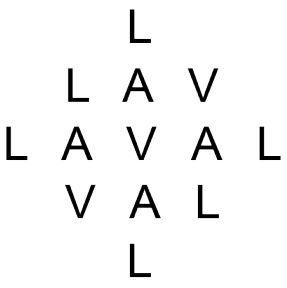


A) 13 B) 12 C) 11 D) 14 E) 15

19. Mathilda leaves from her house. She travels 1 km north, 3 km east, 2 km south, and finally 3 km west. At what distance from her house does she end her journey?

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

20. How many different ways can you read the word LAVAL, if you must read from left to right and from top to bottom?



A) 16 B) 17 C) 24
D) 19 E) 20

21. Mathew waxes a car 3 times faster than Andrea. If Andrea takes 36 minutes to wax the car, how much time will they take together to wax the same car?

A) 9 minutes B) 8 minutes C) 18 minutes D) 11 minutes E) 10 minutes

22. The ones digit of the following product: 13 x 12 x 11 x 10 x 9 x 8 x 7 is

A) 6 B) 5 C) 4 D) 3 E) 0