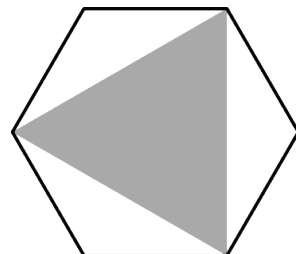


Mathematica Centrum

Together, let's shape the mathematicians of the future

THALES PREPARATORY TEST 2014

- The number of vertices plus the number of edges of a cube is equal to
A) 22 B) 14 C) 20 D) 18 E) 16
- Which number is a multiple of 4?
A) 18 B) 24 C) 34 D) 14 E) 23
- Three quarters = 10 dimes - ? nickels.
A) 8 B) 7 C) 4 D) 5 E) 6
- Which number is seven more than thirteen?
A) 22 B) 18 C) 21 D) 19 E) 20
- The missing number in the equation: $10 \times 2 \div 4 = ? \div 4$ is
A) 5 B) 20 C) 10 D) 16 E) 24
- The number of sides of a rectangle multiplied by the number of faces of a cube is equal to
A) 24 B) 18 C) 20 D) 16 E) 32
- The third letter before the 10th letter of the alphabet is
A) H B) M C) L D) F E) G
- Three times a number minus 3 is equal to 21.
What is the number?
A) 10 B) 6 C) 8
D) 7 E) 9
- What fraction of the regular hexagon is shaded?
A) $\frac{1}{4}$ B) $\frac{1}{5}$ C) $\frac{1}{6}$
D) $\frac{1}{2}$ E) $\frac{1}{3}$



10. What is the value of n in the equation: $2 \times n = n + 3$?

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

11. Mathew talked for 130 seconds. He talked for

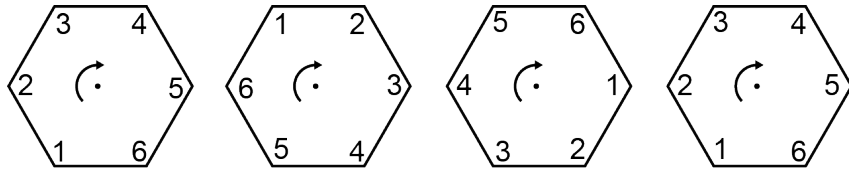
- A) 1 min 40 s B) 2 min C) 1 min 50 s
 D) 2 min 20 s E) 2 min 10 s

$$\begin{array}{r} 78A = 1C7 \\ \underline{B} \end{array}$$

12. If A , B , and C represent 3 different digits, what is the sum of $A + B + C$ that will yield a result that is exact?

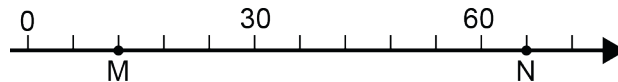
- A) 19 B) 18 C) 20 D) 21 E) 17

13. The hexagons 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) 3/6 of a turn B) 2/6 of a turn C) 4/6 of a turn D) 6/6 of a turn E) 5/6 of a turn

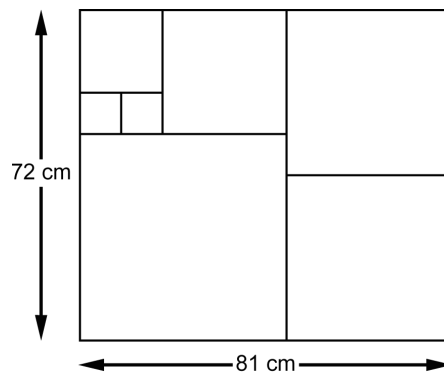
14. What is the length of segment MN (distance between points M and N on the number line)?



- A) 45 B) 48 C) 54
 D) 42 E) 60

15. Tim has used square tiles to cover a rectangular surface of $81 \text{ cm} \times 72 \text{ cm}$. What is the length of the side of the smallest tile he has used?

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

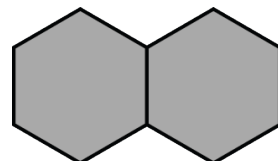


16. How many hexagons must be drawn to completely surround the 2 shaded hexagons?

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

17. The number of even numbers between 10 and 40 is equal to

- A) 15 B) 14 C) 16
 D) 13 E) 17



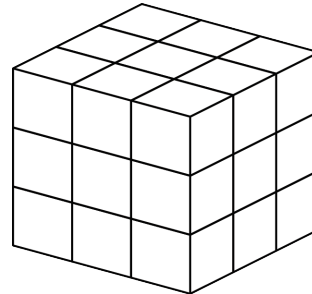
18. The fourth day of a month is a Monday. The last day of this month cannot be a Wednesday, nor a Tuesday, nor a

- A) Saturday B) Thursday C) Friday D) Sunday E) Monday

19. How many natural numbers between 10 and 60 have at least one digit which is a "3"?

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

20. A large wooden cube is painted and then divided into 27 smaller cubes (see diagram). How many of these small cubes have only one face that is covered with paint?



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

21. There are some numbers between 0 and 100 that are multiples of 7 and that, when divided by 2 or by 3, leave a remainder of 1. Which of the following numbers could be one of them?

- A) 14 B) 28 C) 77 D) 49 E) 84