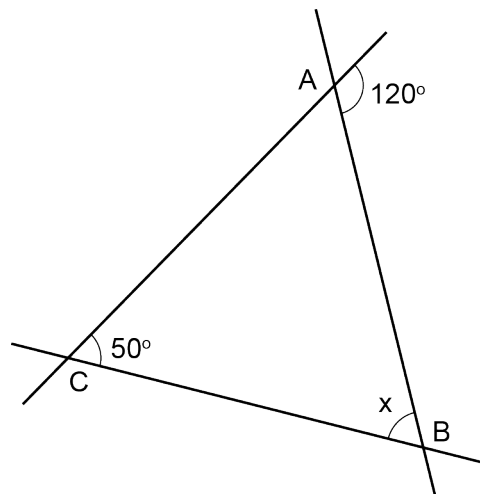


Mathematica Centrum

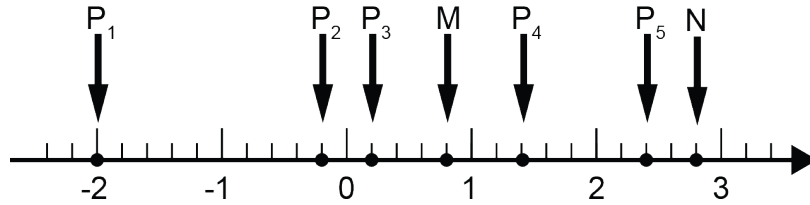
Together, let's shape the mathematicians of the future

EULER PREPARATORY TEST 2022

- The result of $100 + 10 - 1 + 0.2$ is
A) 109.1 B) 109.2 C) 118.9 D) 110 E) 108.1
- The closest integer to the value of $0.3 + 0.6 - 0.3 + 0.1$ is
A) 1 B) 0 C) -1 D) 2 E) -2
- $\frac{2}{5}$ of 25 = ?
A) 6 B) 8 C) 9 D) 10 E) 7
- The square root of the cube of 4 is equal to
A) 3 B) 4 C) 16 D) 8 E) 2
- The value of $(-3 + 7) - (-8 - 3)$ is
A) -11 B) 14 C) -10 D) 11 E) 15
- $-1 \times -2 \times 3 \times -4 = ?$
A) -24 B) 12 C) -12 D) 18 E) 24
- What is the product of the opposite of -2 and the opposite of 5?
A) 2 B) -10 C) -2 D) 3 E) 18
- $\frac{1}{2} + \frac{1}{4} - \frac{1}{8} = ?$
A) $\frac{15}{16}$ B) $\frac{1}{2}$ C) $\frac{5}{8}$
D) $\frac{9}{8}$ E) $\frac{3}{4}$
- $\frac{5}{4}$ of 10% of 0.8 is equal to
A) 10% B) 15% C) 16%
D) 0.2 E) 0.3
- The supplement of angle x minus the complement of angle x is equal to
A) 65° B) 60° C) 80°
D) 100° E) 90°



20. Which point on the number line is 4 times further from point M than from point N?



- A) P_1 B) P_3 C) P_2 D) P_5 E) P_4

21. The 5 letters of the name EULER are in a bag. If you draw, at random, one letter from the bag, what is the probability of drawing a consonant?

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

22. A, B, C, and D are four natural numbers. We know that $A \times B = 20$, $B \times C = 35$, and $C \times D = 70$. What is the value of $A \times D$?

- A) 36 B) 32 C) 30 D) 35 E) 40

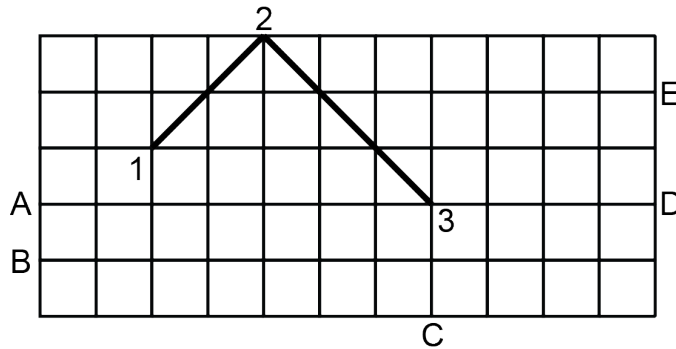
23. The perimeter of a rectangle is 30 cm. If its length were doubled, the perimeter would become 50 cm. What is the width of the rectangle?

- A) 8 cm B) 10 cm C) 5 cm D) 6 cm E) 12 cm

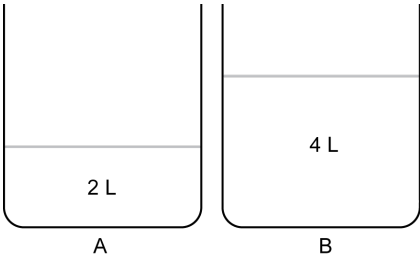
24. How many 9's are used when $10^3 - 9$ is written as a natural number?

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

25. The diagram below shows a frictionless table covered by a chequered cloth. Mathilda releases a disc from point 1. The disc hits the side of the table at point 2, where it rebounds for the first time and then continues its way to point 3. At which point (A, B, C, D or E) will the disc hit the side of the table when it rebounds for the 8th time?



29. Container A holds 2 litres of water. Container B holds a homogeneous mixture of 3 litres of wine and 1 litre of water. One litre of mixture B is poured into container A. What fraction of the final mixture in container A does the wine represent?



A) $3/8$

B) $5/16$

C) $1/2$

D) $1/4$

E) $1/3$