Topic: Perimeter of a rectangle

Question: What is the perimeter of a rectangle with one vertex at $(0,0)$ and the opposite vertex at $(9,6)$, if its sides are parallel to the coordinate axes?

Answer choices:

A 15

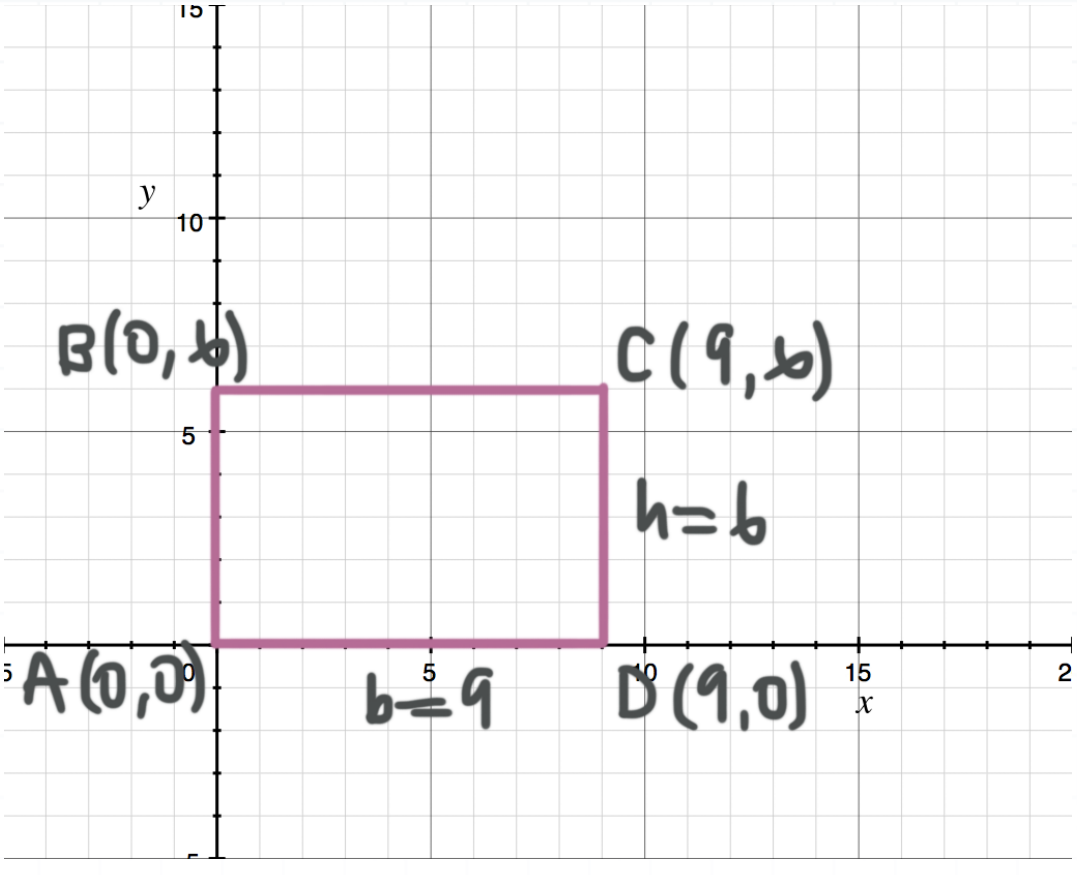
B 30

C 45

D 54

Solution: B

The perimeter of rectangle $ABCD$,



is

$$\overline{AB} + \overline{BC} + \overline{CD} + \overline{DA} = 6 + 9 + 6 + 9$$

$$\overline{AB} + \overline{BC} + \overline{CD} + \overline{DA} = 30$$

Or we could write

$$\text{perimeter} = 2b + 2h$$

$$\text{perimeter} = 2(9) + 2(6)$$

$$\text{perimeter} = 18 + 12$$

$$\text{perimeter} = 30$$

Topic: Perimeter of a rectangle

Question: Find the perimeter of a rectangle with a base length of 6 and an area of 54.

Answer choices:

A 12

B 15

C 22

D 30

Solution: D

The formula for area of a rectangle is

$$A = bh$$

We know that $A = 54$ and $b = 6$, so

$$54 = 6 \cdot h$$

Solving for h, we get

$$h = \frac{54}{6} = 9$$

The rectangle will have two sides of length 6 and two sides of length 9.

$$\text{perimeter} = 2(6) + 2(9)$$

$$\text{perimeter} = 12 + 18$$

$$\text{perimeter} = 30$$

Topic: Perimeter of a rectangle

Question: What is the height of a rectangle with a height that's twice the base, and a perimeter of 36?

Answer choices:

A 6

B 8

C 9

D 12

Solution: D

Let x be the base, which would make the height $2x$. Then the perimeter is the sum of twice the base and twice the height.

$$\text{twice the base} = 2(x) = 2x$$

$$\text{twice the height} = 2(2x) = 4x$$

So we see that

$$\text{perimeter} = 2x + 4x = 6x$$

and we know that the perimeter is 36. Therefore,

$$6x = 36$$

$$x = 6$$

Which means that

$$\text{height} = 2x = 2(6) = 12$$