What is the solution of the equation $-5x + 7y = 16$ find the value of y when $x = 8$.

Solution:

Firstly we have to isolate "x" to one side of the equation by subtracting $7y$ from both sides:

$$-5x + 7y - 7y = 16 - 7y$$

$$-5x = 16 - 7y$$

Second step is to divide both sides by 5:

$$x = -\frac{16}{5} + \frac{7}{5}y$$

$$x = \frac{7}{5}y - \frac{16}{5}$$

Check our solution with the original equation (substitute x into the equation$-5x + 7y = 16$):

$$-5(\frac{7}{5}y - \frac{16}{5}) + 7y = 16$$

$$-7y + 16 + 7y = 16$$

$$16 = 16$$

Now we solve the second part of task: find the value of y when $x = 8$.

$$-5x + 7y = 16$$

Firstly we express y from the equation:

$$7y = 16 + 5x$$

$$y = \frac{16}{7} + \frac{5}{7}x$$

Substitute $x = 8$ into the equation:

$$y = \frac{16}{7} + \frac{5}{7} \cdot 8$$

$$y = \frac{16}{7} + \frac{40}{7}$$

$$y = \frac{56}{7} = 8$$

So, if $x = 8$ then $y = 8$

We can check our solution:

Substitute $x = 8$ and $y = 8$ into the equation:

$$-5x + 7y = 16$$

$$-5 \times 8 + 7 \times 8 = 16$$

$$-40 + 56 = 16$$

$$16 = 16$$

Answer:

The solution of the equation $-5x + 7y = 16$ is $y = \frac{16}{7} + \frac{5}{7}x$

The value of y when $x = 8$ is equal to 8.