

Solving for X

name _____

From the last couple activities, we learned that, if we don't know what our variable x equals, we can figure it out by **undoing the operations** we did **in the reverse** order. Here is an example of an equation that I've explained in a few different ways:

Equation: $3 \cdot x - 5 = 10$

Picture:

In Writing:

First, we multiply our mystery number by 3, then we subtract 5, and this amount is the same as 10.

To find the answer, we must get x by itself by undoing each operation in reverse order.

In Writing

1. First, we undo subtracting 5 by adding 5 to both sides

Equation

$$3 \cdot x - 5 = 10$$

2. Next, we undo multiplying by 3 by dividing both sides by 3

$$3 \cdot x = 15$$

3. We know what x is the same as!

$$x = 5$$

Let's practice some on our own. Try the challenge problems if you have extra time.

a. $15 = 3 + 4x$ b. $x \cdot 2 - 3 = 4$ c. $5 + 2(3 + x) = 11$

Challenge Mode!

d. $6 + \frac{2+3x}{5} = (-4)^2$

$$5 = -7 + \frac{2}{3}x$$

Wierdo Situations when Solving for X name_____

NEGATIVE SIGNS?!?!?

$$-15 = 3 - 4x$$

$$-2 = \frac{x-3}{-2}$$

FRACTIONS?!?!?!?

$$\frac{2}{3}x - 2 = 2$$

$$\frac{x}{4} - \frac{3}{5} = \frac{1}{5}$$