Solving two-step equations

Goal: Two-Step equations require you to isolate the ______ in _____ steps.

Look at the following problems. Circle or highlight the step you must take first and turn each equation into a one-step equation.

$$\frac{a}{4} + 2 = 6$$

$$9x - 7 = -7$$

$$\frac{x+3}{4} = 7$$

$$12(x+1) = 144$$

$$\frac{1}{2}a - 2 = 6$$

$$\frac{3}{x} = \frac{7}{12}$$

Lets work through the next few two-step equations together.

$$2x + 9 = 21$$

$$\frac{r}{10} + 5 = 25$$

$$\frac{n-5}{2} = 5$$

Solving two-step equations

Goal: Two-Step equations require you to isolate the VARIABLE in 2 steps.

Look at the following problems. Circle or highlight the step you must take first and turn each equation into a one-step equation.

$$\frac{a}{4} + 2 = 6$$

$$-x - 2$$

$$\frac{a}{4} = 4$$

$$40) \frac{a}{4} = 4(4)$$

$$a = 16$$

$$9x - 7 = -7$$

$$+7 + 7$$

$$-9x = 0$$

$$\frac{9x}{9} = \frac{0}{9}$$

$$x = 0$$

$$\frac{x+3}{4} = 7$$

$$(4) \times +3 = 7 (4)$$
ELIMINATE THE DENOMINATOR
$$\times +3 = 28$$

$$-3 -3$$

$$\times = 25$$

$$12(x+1) = 144$$

$$12 \times + 12 = 144$$

$$-12 - 12$$

$$12 \times = -12$$

$$12 \times -12$$

$$\frac{\frac{1}{2}a - 2 = 6}{+2 + 2}$$

$$\frac{1}{2}a = 8$$

$$\frac{1}{2}a = 8(\frac{2}{1})$$

$$a = 16$$

$$3 = 7 \text{ CROSS}$$

$$36 = 7 \times$$

$$36 = 7 \times$$

$$\frac{36}{7} = \frac{7}{7}$$

$$\frac{36}{7} = \times$$

WHAT ARE SOME PATTERNS YOU SEE?

Lets work through the next few two-step equations together.

$$2x + 9 = 21$$

$$-9$$

$$2 \times = 12$$

$$2 \times = 12$$

$$2 \times = 6$$

$$\frac{10}{5-5}$$

$$\frac{1}{5-5}$$

$$\frac{1$$

$$\frac{n-5}{2} = 5$$
(2) $n-5 = 5(2)$

$$n-5 = 10$$

$$n-5 = 10$$

$$n = 15$$

Review: Solve each one-step equation

1.
$$x - 7 = 13$$

4.
$$-6 = \frac{b}{18}$$

2.
$$4 + m = -12$$

$$5. \ \frac{1}{2}x = 10$$

3.
$$14b = -56$$

Solve each two-step equation

6.
$$\frac{4}{10} + 4 = 5$$

11.
$$9x - 7 = -7$$

7.
$$3p - 2 = -29$$

12.
$$\frac{v+9}{3} = 8$$

8.
$$\frac{k-10}{2} = -7$$

13.
$$2(n+5) = -2$$

9.
$$-9 + \frac{n}{4} = -7$$

14.
$$144 = -12(x + 5)$$

$$10. \ \frac{-5+x}{22} = -1$$

15.
$$-10 = -10 + 7m$$

Review: Solve each one-step equation

1.
$$x - 7 = 13$$
 $+1 + 7$
 $\times = 20$



2.
$$4 + m = -12$$

$$-4$$

$$\boxed{M = -16}$$

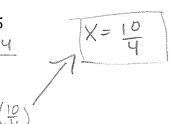
3.
$$14b = -56$$
 14
 14
 14
 14
 14

Solve each two-step equation

6.
$$\frac{4}{10} \times + 4 = 5$$

$$\frac{-4}{10} \times = 1$$

$$\frac{10}{10} \times = 1$$



7.
$$3p-2=-29$$
 $+2$
 $+2$
 $+2$
 $3p=-27$
 $3p=-27$
 $3p=-27$

$$8. \ \frac{k-10}{2} = -7$$

$$(2) \times -10 = -7(2)$$
 $\times -10 = -7(2)$
 $\times -10 = -14$
 $\times +10 = +10$

9.
$$-9 + \frac{n}{4} = -7$$

 $+9 + 9$
 $\frac{n}{4} = -2$
 $(9 \frac{n}{4} = -2(4))$

$$10. \frac{-5+x}{22} = -1$$

$$(22)^{2} - 5 + 1$$

WARM UP THE ENGINE!

$$4.\frac{(18)}{-6} = \frac{b}{18}$$
 (18)

$$5. \ \frac{1}{2}x = 10$$

11.
$$9x - 7 = -7$$

$$+7 + 7$$

$$9x = 0$$

$$\frac{9x}{9} = \frac{0}{9}$$

$$12^{3/\frac{\nu+9}{3'}} = 8(3)$$

13.
$$2(n+5) = -2$$

$$2n+10 = -2$$

$$2n+10 = -2$$

$$2n+10 = -2$$

$$2n+10 = -10$$

$$2n = -12$$

$$13. 2(n+5) = -12$$

$$2n = -12$$

14.
$$144 = -12(x + 5)$$

$$144 = -12(x + 5)$$

$$144 = -12 \times -60$$

$$+60$$

$$204 = -12 \times -12$$

$$-17 = \times$$

15.
$$-10 = -10 + 7m$$
 $+ 10 + 10$
 $0 = 7m$
 $0 = 7m$