

1. Evaluate: → plug it in! Use Parenthesis

$$3x^3 - 8y^2 \quad \text{if } x = 2 \text{ and } y = -3$$

$$3(2)^3 - 8(-3)^2 \quad 24 - 72 = \boxed{-48}$$

$$3(8) - 8(9)$$

2. Simplify: Combine Like Terms

a. $\underline{7x} - \underline{4y} - \underline{8} - \underline{3x} - \underline{8y} + \underline{12}$

$$4x - 12y + 4$$

b. $9(x-3) - 1(x+2)$

$$9x - 27 - 1x - 2$$

$$\boxed{8x - 29}$$

3. Write an expression or equation for each:

"The product of a number and 7, increased by three."

$$7n + 3$$

"Four times the difference of a number and nine is -30."

$$4(n-9) = -30$$

Solve each equation. Show your work!

4. $\frac{2}{5}x - 3 = -17$
 $\frac{5}{2} \cdot \frac{2}{5}x = -14 \cdot \frac{5}{2}$

$$\boxed{x = -35}$$

6. $-5(x-2) - (x+2) = 50$

$$\underline{-5x + 10} - \underline{x - 2} = 50$$

$$\underline{-6x + 8} = \underline{50 - 8}$$

$$-6x = 42$$

$$\boxed{x = -7}$$

8. $9(n-4) - 7n = 32 - 2(n+8)$

$$9n - 36 - 7n = 32 - 2n - 16$$

$$2n - 36 = 16 - 2n$$

$$\underline{+2n} \quad \underline{+2n}$$

$$4n - 36 = 16$$

$$\underline{+36} \quad \underline{+36}$$

$$\frac{4n}{4} = \frac{52}{4}$$

$$\boxed{n = 13}$$

5. $\frac{-12 = 4 - 2x}{-4 - 4}$

$$\underline{-16} = \underline{-2x}$$

$$\underline{-2} \quad \underline{-2}$$

$$\boxed{8 = x}$$

7. $-7(a-3) = 11 - 7a$

$$\underline{-7a + 21} = \underline{11 - 7a}$$

$$\underline{+7a} \quad \underline{+7a}$$

$$21 = 11$$

No Solution!

9. $3w - (7w + 12) = 2(w - 3)$

$$3w - 7w - 12 = 2w - 6$$

$$\underline{-4w - 12} = \underline{2w - 6}$$

$$\underline{+4w} \quad \underline{+4w}$$

$$\underline{-12} = \underline{6w - 6}$$

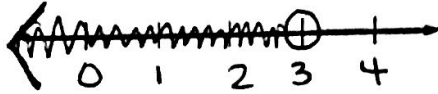
$$\underline{+6} \quad \underline{+6}$$

$$\underline{\frac{-6}{6}} = \underline{\frac{6w}{6}}$$

$$\boxed{-1 = w}$$

10.

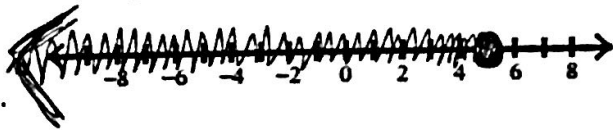
$$\begin{array}{r} 3x + 5 < 14 \\ -5 \quad -5 \\ \hline \frac{3x}{3} < \frac{9}{3} \\ x < 3 \end{array}$$



11.

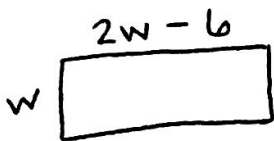
$$\begin{array}{r} 2(x+3) \geq 4(x-1) \\ 2x+6 \geq 4x-4 \\ -2x \quad -2x \\ \hline 6 \geq 2x-4 \\ +4 \quad +4 \\ \hline \frac{10}{2} \geq \frac{2x}{2} \end{array}$$

$$5 \geq x \quad x \leq 5$$



12 and 13

A rectangle has a length six inches less than twice its width. If the perimeter of the rectangle is inches, find the dimensions.



This would have to tell you how many inches the perimeter is!

The sum of two consecutive numbers is 45. Find the numbers.

14.

int 1: x
int 2: $x+1$

2. Solve $w = \left(\frac{1}{2}x^2y\right)^2$ for y

$$x + x + 1 = 45$$

$$2x + 1 = 45$$

$$\begin{array}{r} -1 \quad -1 \\ \hline 2x = 44 \end{array}$$

$$\frac{2x}{2} = \frac{44}{2}$$

$$x = 22$$

The numbers are 22 and 23.

$$\frac{2w}{x^2} = \frac{x^2y}{x^2}$$

$$\boxed{\frac{2w}{x^2} = y}$$