

1. Solve for x: $-9x + 6(2x - 3) = -11 - 4x$

$$-9x + 12x - 18 = -11 - 4x$$

$$3x - 18 = -11 - 4x$$

$$+4x + 18 \quad +18 + 4x$$

$$7x = 7$$

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

$$x = 1$$

2. Solve for p: $\frac{p}{4} - \frac{3p}{8} = 4$

$$8\left(\frac{p}{4} - \frac{3p}{8}\right) = 4(8)$$

$$2p - 3p = 32$$

$$-1p = 32$$

$$p = -32$$

3. Simplify: $\left(\frac{1}{4}\right)^{-4}$

$$\left(\frac{1}{4}\right)^{-4} = \left(\frac{4}{1}\right)^4 = 4^4 = 256$$

4. Find the slope and y-intercept of $4x - 5y = 5$.

$$-5y = -4x + 5$$

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

$$m = \frac{4}{5}$$

$$b = (0, -1)$$

5. The perimeter for a rectangle is 44 m. If the width were doubled and the length were increased by 8 m, the perimeter is 76 m. What is the length of the rectangle?

$$P = 2l + 2w$$

$$44 = 2l + 2w$$

$$76 = 2(l + 8) + 2(2w)$$

$$76 = 2l + 16 + 4w$$

$$60 = 2l + 4w$$

$$44 = 2l + 2w$$

$$-44 = -2l - 2w$$

$$60 = 2l + 4w$$

$$16 = 2w \quad w = 8$$

$$44 = 2l + 2(8)$$

$$44 = 2l + 16$$

$$-16 \quad 28 = 2l$$

$$14 = l$$

6. Find the product: $(4x - 5y)^2 = (4x - 5y)(4x - 5y)$

$$16x^2 - 20xy - 20xy + 25y^2$$

$$\boxed{16x^2 - 40xy + 25y^2}$$

7. Factor by grouping: $x^3 + 6x^2 + 8x + 48$

$$(x^3 + 6x^2)(+8x + 48)$$

$$x^2(x + 6) + 8(x + 6)$$

$$(x^2 + 8)(x + 6)$$

8. Determine the two factors of $20x^2 - 7x - 6$.

$$(4x - 3)(5x + 2)$$

9. A room has an area of 456 square feet. One dimension is 5 feet more than the other. Find the dimensions of the room.

$$A = 456$$

$$l = 5 + w$$

$$l = 5 + 19$$

$$\boxed{l = 24}$$

$$A = lw$$

$$456 = (5 + w)w$$

$$456 = 5w + w^2$$

$$0 = w^2 + 5w - 456$$

$$0 = (w + 24)(w - 19)$$

$$w + 24 = 0 \quad w - 19 = 0$$

$$w = -24 \quad \boxed{w = 19}$$

10. Factor: $-x^2 - 2x + 24$

$$-(x^2 + 2x - 24)$$

$$\boxed{-(x + 6)(x - 4)}$$

11. Use the Quadratic Formula to solve the equation: $4n^2 = -6n - 1$

$$4n^2 + 6n + 1 = 0 \quad a=4 \quad b=6 \quad c=1$$

$$X = \frac{-6 \pm \sqrt{6^2 - 4(4)(1)}}{2(4)}$$

$$X = \frac{-6 \pm \sqrt{36 - 16}}{8} = \frac{-6 \pm \sqrt{20}}{8} = \frac{-6 \pm 2\sqrt{5}}{8} = \frac{-3 \pm \sqrt{5}}{4}$$

12. Give the solution set: $|12 - 4p| = 8$

$$\begin{array}{r} 12 - 4p = 8 \\ -12 \quad -12 \\ \hline -4p = -4 \\ p = 1 \end{array}$$

$$\begin{array}{r} 12 - 4p = -8 \\ -12 \quad -12 \\ \hline -4p = -20 \\ p = 5 \end{array}$$

13. Solve for x: $x - \frac{3}{2x} = \frac{7}{4}$ LCD: $4x$

$$\begin{aligned} 4x \left(x - \frac{3}{2x} = \frac{7}{4} \right) 4x \\ 4x^2 - 6 = 7x \\ 4x^2 - 7x - 6 = 0 \end{aligned}$$

$$a=4 \quad b=-7 \quad c=-6$$

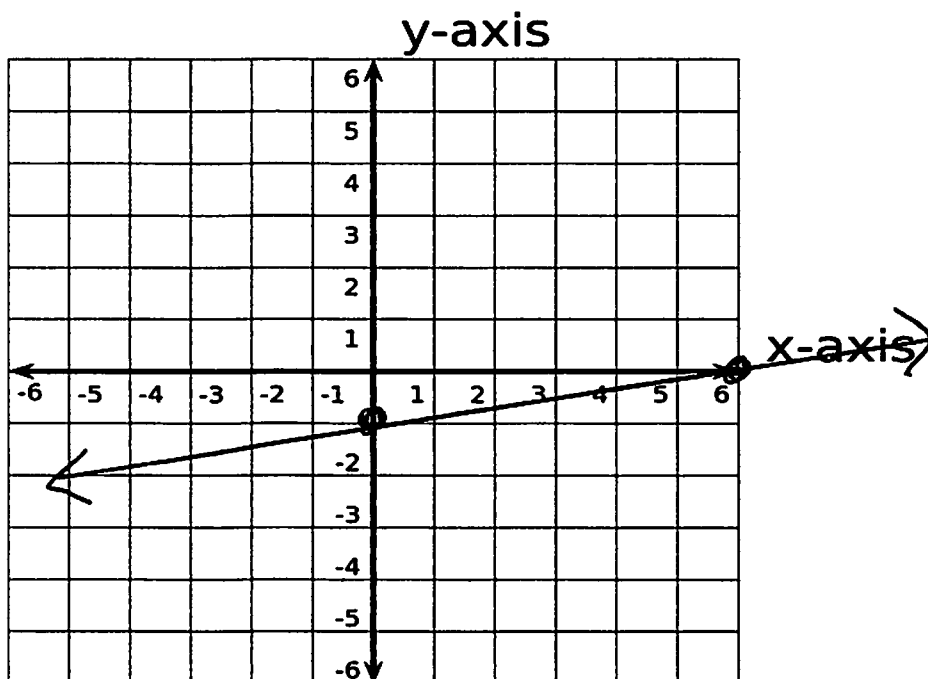
$$X = \frac{-(-7) \pm \sqrt{(-7)^2 - 4(4)(-6)}}{2(4)}$$

$$X = \frac{7 \pm \sqrt{49 + 96}}{8} = \frac{7 \pm \sqrt{145}}{8}$$

14. Solve for y: $-7y - 12 \leq -8y - 5$

$$\begin{array}{r} -7y - 12 \leq -8y - 5 \\ +8y \quad +12 \quad +8y \quad +12 \\ \hline y \leq 7 \end{array}$$

15. Find the x- and y-intercepts. Then graph the equation $3x - 18y = 18$



use x- and y-intercepts

$$\begin{aligned} \text{x-int: } 3x - 18(0) &= 18 \\ 3x &= 18 \\ x &= 6 \\ (6, 0) \end{aligned}$$

$$\begin{aligned} \text{y-int: } 3(0) - 18y &= 18 \\ -18y &= 18 \\ y &= -1 \\ (0, -1) \end{aligned}$$