

ALGEBRA 1
WS 9.4

Name KEY
Date _____

Show all of the steps throughout the process. Verify all steps and solutions on ktlmathclass.weebly.com.

Use the Zero-Product Property to solve each equation.

1. $(n + 3)(n - 2) = 0$

$$n + 3 = 0 \quad \text{or} \quad n - 2 = 0$$

$$n = -3 \quad \quad \quad n = 2$$

2. $(4a + 2)(a - 6) = 0$

$$4a + 2 = 0 \quad \text{or} \quad a - 6 = 0$$

$$\frac{4a}{4} = \frac{-2}{4} \quad \quad \quad a = 6$$

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

3. $x(x - 3) = 0$

$$x = 0 \quad \text{or} \quad x - 3 = 0$$

$$\quad \quad \quad x = 3$$

4. $2p(3p + 4) = 0$

$$\frac{2p}{2} = \frac{0}{2} \quad \text{or} \quad 3p + 4 = 0$$

$$p = 0 \quad \quad \quad \frac{3p}{3} = \frac{-4}{3}$$

$$\quad \quad \quad p = -\frac{4}{3}$$

Solve by factoring. SHOW ALL OF THE STEPS!!

5. $2x^2 + x = 6$

$$2x^2 + x - 6 = 0$$

$$\begin{array}{cc} \wedge & \wedge \\ 2x & x \\ \wedge & \wedge \\ 1 & 6 \\ 2 & 3 \end{array}$$

$$(2x - 3)(x + 2) = 0$$

-3x
+4x

← MUST have

$$2x - 3 = 0 \quad \text{or} \quad x + 2 = 0$$

$$2x = 3 \quad \quad \quad x = -2$$

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

6. $15a^2 = a + 6$

$$15a^2 - a - 6 = 0$$

$$\begin{array}{cc} \wedge & \wedge \\ 15a & 1a \\ 5a & 3a \\ \wedge & \wedge \\ 1 & 6 \\ 2 & 3 \end{array}$$

$$(5a + 3)(3a - 2) = 0$$

+9a
-10a

← MUST have

$$5a + 3 = 0 \quad \text{or} \quad 3a - 2 = 0$$

$$5a = -3 \quad \quad \quad 3a = 2$$

$$a = -\frac{3}{5} \quad \quad \quad a = \frac{2}{3}$$

Rewrite in standard form, and solve by factoring. SHOW ALL OF THE STEPS!!

$$7. \quad \begin{array}{r} 3x^2 - x - 7 = 2x^2 + 5 \\ -2x^2 \quad -2x^2 \end{array}$$

$$\underline{x^2 - x - 7 = 5}$$

$$x^2 - x - 12 = 0$$



$$(x - 4)(x + 3) = 0$$

$$x - 4 = 0 \quad \text{or} \quad x + 3 = 0$$

$$x = 4$$

$$x = -3$$

$$8. \quad \begin{array}{r} x^2 - 4x - 2 = -9x + 4 \\ +9x \quad +9x \end{array}$$

$$\underline{x^2 + 5x - 2 = 4}$$

$$x^2 + 5x - 6 = 0$$

$$(x + 6)(x - 1) = 0$$

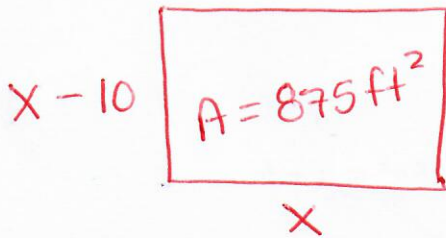
$$x + 6 = 0 \quad \text{or} \quad x - 1 = 0$$

$$x = -6$$

$$x = 1$$

Must have

9. The area of a rectangular parking lot is 875 ft^2 . The parking lot has dimensions such that the width is 10 feet less than the length. What are the dimensions of the parking lot?



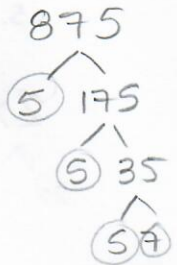
$$A = l w$$

$$875 = (x)(x-10)$$

$$875 = x^2 - 10x$$

$$0 = x^2 - 10x - 875$$

$$\begin{array}{r} 25 \quad 35 \end{array}$$



$$0 = (x - 35)(x + 25)$$

$$\begin{array}{r} -35x \\ 25x \end{array}$$

$$x - 35 = 0$$

$$x = 35$$

$$\text{or } x + 25 = 0$$

$$x = -25$$

length can't be negative

The dimensions of the parking lot are

25 ft \times 35 ft.

length

width

$$\text{So } x - 10 = 35 - 10 = 25$$