

Name: _____
 Date: _____
 Class: _____

Algebra
 Unit 8
 HW 8-2

1) Solve: $x^2 - 2x = 3$

$$\begin{array}{r} -3 \quad -3 \\ \hline \end{array}$$

$$x^2 - 2x - 3 = 0$$

$$(x-3)(x+1) = 0$$

$$x=3 \quad x=-1$$

2) Solve: $3x^2 + 48 = 30x$

$$\begin{array}{r} -30x \quad -30x \\ \hline \end{array}$$

CCF=3

$$\frac{3x^2 - 30x + 48}{3 \quad 3 \quad 3} = 0$$

$$3(x^2 - 10x + 16) = 0$$

$$3(x-2)(x-8) = 0$$

$$3 \neq 0 \quad x=2 \quad x=8$$

3) Solve: $(x-3)(x+1) + (x-3)(2x-7) = 0$

CCF $\rightarrow (x-3)$

$$(x-3)(x+1 + 2x-7) = 0$$

$$(x-3)(3x-6) = 0$$

$$x-3=0$$

$$x=3$$

$$3x-6=0$$

$$3x=6$$

$$x=2$$

4) Solve: $30x^2 - 80x = 0$

CCF $\rightarrow 10x$

$$10x(3x-8) = 0$$

$$10x=0$$

$$x=0$$

$$3x-8=0$$

$$x = \frac{8}{3}$$

5) Solve: $x^2 + 5x - 12 = 8x - 2$

$$\begin{array}{r} -8x+2 \quad -8x+2 \\ \hline \end{array}$$

$$x^2 - 3x - 10 = 0$$

$$(x-5)(x+2) = 0$$

$$x=5 \quad x=-2$$

6) Solve: $6x^2 - 3x - 28 = 14 + 6x$

$$\begin{array}{r} 6x^2 - 3x - 28 = 14 + 6x \\ -6x \quad -14 \quad -14 -6x \\ \hline \end{array}$$

CF → $\frac{6x^2 - 9x - 42}{3} = 0$

$$3(2x^2 - 3x - 14) = 0$$

$$x^2 - 3x - 28$$

$$(x - 7)(x + 4)$$

$$3(2x - 7)(x + 2) = 0$$

$$3 \neq 0 \quad 2x - 7 = 0 \quad x + 2 = 0$$

$$x = \frac{7}{2} \quad x = -2$$

7) If a rectangle has an area of 416, a length represented by $x + 7$, and a width represented by $3x - 1$, determine what its perimeter would be.

$$(x + 7)(3x - 1) = 416$$

$$3x^2 - x + 21x - 7 = 416$$

$$\begin{array}{r} 3x^2 - x + 21x - 7 = 416 \\ -416 \quad -416 \\ \hline \end{array}$$

$$3x^2 + 20x - 423 = 0$$

$$x^2 + 20x - 1269 = 0$$

$$(x - 27)(x + 47) = 0$$

$$(x - 9)(3x + 47) = 0$$

$$x = 9 \quad 3x + 47 = 0$$

$$x = -\frac{47}{3}$$

1269 d.f signs

$$-27 + 47 = 20$$

8) If a triangle has an area represented by $x^2 - 12x + 32$, determine a value of x that would make the area equal to 12. What would the base and height be?

$$x^2 - 12x + 32 = 12$$

$$\begin{array}{r} x^2 - 12x + 32 = 12 \\ -12 \quad -12 \\ \hline \end{array}$$

$$x^2 - 12x + 20 = 0$$

$$(x - 2)(x - 10) = 0$$

$$\underline{x = 2} \quad \underline{x = 10}$$

x cannot be $-\frac{47}{3}$ b/c
That gives negative side
length.

So $x = 9$

$l \rightarrow 9 + 7 = 16$

$w \rightarrow 3(9) - 1 = 26$

$P \rightarrow 2 \cdot 16 + 2 \cdot 26 =$

$P \rightarrow 84$