

Name: _____

Key

1: Factor
2: Solve using ZPP (set each factor equal to zero)
Date: 4/10/13
Period: _____

Solving Equations by Factoring

Homework Practice - Day 2

$$ax^2 + bx + c = 0$$

Solve each equation. Check your solutions. Hint: Put the equation in standard form.

1. $x^2 + 25 = -10x$ $x^2 + 10x + 25 = 0$

~~$\begin{array}{r} 25 \\ +5 \quad \times \quad +5 \\ \hline 70 \end{array}$~~

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

$$\begin{array}{r} x+5=0 \\ -5 \quad -5 \\ \hline x=-5 \end{array} \quad \boxed{(-5, 0)}$$

2. $12x^2 - 1 = -x$

$$12x^2 + x - 1 = 0$$

$$(4x-1)(3x+1) = 0$$

1: $4x-1=0$
 $4x=1$
 $x=\frac{1}{4}$ $\boxed{(\frac{1}{4}, 0)}$

~~$\begin{array}{r} -12 \\ +4 \quad \times \quad -3 \\ \hline 1 \end{array}$~~

4x	-1
12x ²	-3x
4x	-1

2: $3x+1=0$
 $3x=-1$
 $x=-\frac{1}{3}$ $\boxed{(-\frac{1}{3}, 0)}$

$\{-\frac{1}{3}, \frac{1}{4}\}$
solution set

3. $x^2 = 24 - 10x$

~~$\begin{array}{r} -24 \\ -12 \quad \times \quad +2 \\ \hline 40 \end{array}$~~

$$(x+12)(x-2) = 0$$

1: $x+12=0$
 $x=-12$ $\boxed{(-12, 0)}$

2: $x-2=0$
 $x=2$ $\boxed{(2, 0)}$

4. $4x^2 = 12x$

1: $4x=0$
 $x=0$ $\boxed{(0, 0)}$

2: $x-3=0$
 $x=3$ $\boxed{(3, 0)}$

5. $6x^2 + 5 = -17x$

~~$\begin{array}{r} 30 \\ +5 \quad \times \quad -2 \\ \hline 17 \end{array}$~~

$$(3x+1)(2x+5) = 0$$

1: $3x+1=0$
 $3x=-1$
 $x=-\frac{1}{3}$ $\boxed{(-\frac{1}{3}, 0)}$

2: $2x+5=0$
 $2x=-5$
 $x=-\frac{5}{2}$ $\boxed{(-\frac{5}{2}, 0)}$

6. $3x^2 = 12x$

1: $3x=0$
 $x=0$ $\boxed{(0, 0)}$

2: $x-4=0$
 $x=4$ $\boxed{(4, 0)}$

7. $x^2 = 2x - 3$

~~$\begin{array}{r} 3 \\ -1 \quad \times \quad -3 \\ \hline -2 \end{array}$~~

prime

8. $2x^2 + 5 = 10x$

prime

~~$\begin{array}{r} +10 \\ -10 \quad \times \quad -10 \\ \hline -10 \end{array}$~~

$2x^2$	$-5x$
$-5x$	5

9. $2x^2 + 8x = -7$

~~$\begin{array}{r} 8 \\ 14 \quad \times \quad 14 \\ \hline 14 \end{array}$~~

prime

10. $x^2 = -6x - 9$

1: $x+3=0$
 $x=-3$ $\boxed{(-3, 0)}$

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