

1: factor
2: Solve using ZPP

Name: _____

Date: _____

Period: _____

Solving Equations by Factoring

Homework Practice - Day 2

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

1. $x^2 + 25 = -10x$ $x^2 + 10x + 25 = 0$
 ~~$\begin{array}{r} 10 \\ +5 \times 5 \\ \hline 25 \end{array}$~~
 $(x+5)(x+5) = 0$
 $(x+5)^2 = 0$
 $x+5=0$
 $x = -5$ (-5, 0)

2. $12x^2 - 1 = -x$
 $12x^2 + x - 1 = 0$
 $(4x-1)(3x+1) = 0$
 1: $4x-1=0$
 $4x = 1$
 $x = \frac{1}{4}$ ($\frac{1}{4}, 0$)
 2: $3x+1=0$
 $3x = -1$
 $x = -\frac{1}{3}$ ($-\frac{1}{3}, 0$)

3. $x^2 = 24 - 10x$
 $x^2 + 10x - 24 = 0$
 ~~$\begin{array}{r} 10 \\ +12 \times 2 \\ \hline 24 \end{array}$~~
 $(x+12)(x-2) = 0$
 1: $x+12=0$
 $x = -12$ (-12, 0)
 2: $x-2=0$
 $x = 2$ (2, 0)

4. $4x^2 = 12x$
 $4x^2 - 12x = 0$
 $4x(x-3) = 0$
 1: $4x=0$
 $x=0$ (0, 0)
 2: $x-3=0$
 $x=3$ (3, 0)

5. $6x^2 + 5 = -17x$
 $6x^2 + 17x + 5 = 0$
 ~~$\begin{array}{r} 17 \\ +5 \times 3 \\ \hline 30 \end{array}$~~
 $(3x+1)(2x+5) = 0$
 1: $3x+1=0$
 $3x = -1$
 $x = -\frac{1}{3}$ ($-\frac{1}{3}, 0$)
 2: $2x+5=0$
 $2x = -5$
 $x = -\frac{5}{2}$ ($-\frac{5}{2}, 0$)

6. $3x^2 = 12x$
 $3x^2 - 12x = 0$
 $3x(x-4) = 0$
 1: $3x=0$
 $x=0$ (0, 0)
 2: $x-4=0$
 $x=4$ (4, 0)

7. $x^2 = 2x - 3$
 $x^2 - 2x + 3 = 0$
 ~~$\begin{array}{r} 2 \\ +1 \times 3 \\ \hline 3 \end{array}$~~
 $(x+1)(x-3) = 0$
 1: $x+1=0$
 $x = -1$ (-1, 0)
 2: $x-3=0$
 $x = 3$ (3, 0)

8. $2x^2 + 5 = 10x$
 $2x^2 - 10x + 5 = 0$
 ~~$\begin{array}{r} 10 \\ 10 \\ \hline 20 \end{array}$~~
prime

9. $2x^2 + 8x = -7$
 $2x^2 + 8x + 7 = 0$
 ~~$\begin{array}{r} 8 \\ +14 \times 2 \\ \hline 28 \end{array}$~~
prime

10. $x^2 = -6x - 9$
 $x^2 + 6x + 9 = 0$
 $(x+3)(x+3) = 0$
 $(x+3)^2 = 0$
 $x+3=0$
 $x = -3$ (-3, 0)