

Name key

Algebra II Practice Quiz 6.3

Solve each equation by factoring. Circle your answers.

1. $x^2 = 11x$

$$\frac{-11x - 11x}{}$$

$$x^2 - 11x = 0$$

$$x(x - 11) = 0$$

$$x = 0$$

$$\begin{array}{r} x - 11 = 0 \\ + 11 \quad + 11 \\ \hline x = 11 \end{array}$$

$$\{0, 11\}$$

$$2. \quad x^2 + 6x - 16 = 0$$
$$(x+8)(x-2) = 0$$
$$\begin{array}{r} x-16 \mid +6 \\ \hline 8, -2 \end{array}$$
$$\begin{array}{r} x+8=0 \\ -8 \quad -8 \\ \hline x=-8 \end{array} \quad \begin{array}{r} x-2=0 \\ +2 \quad +2 \\ \hline x=2 \end{array}$$
$$\{-8, 2\}$$

3. $x^2 + 9 = 6x$

$$\frac{-6x - 6x}{}$$

$$x^2 - 6x + 9 = 0$$

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

$$x-3=0 \quad x-3=0$$

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

$$\{3\}$$

$$\begin{array}{r|l} x & 9 \\ \hline & + -6 \\ & -3; 3 \end{array}$$

$$4. \quad x^2 + 8x + 12 = 0$$
$$(x+6)(x+2) = 0$$

x	12	$+8$
$6, 2$		

$$x+6=0 \quad x+2=0$$
$$\begin{array}{r} -6 \quad -6 \\ \hline x = -6 \end{array} \quad \begin{array}{r} -2 \quad -2 \\ \hline x = -2 \end{array}$$

$$\{-6, -2\}$$

5. $6x^2 + 6 = -13x$

$+13x + 13x$

$$\underline{6x^2 + 13x + 6 = 0}$$

$$(6x^2 + 9x)(4x + 6) = 0$$

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

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

$$\begin{array}{r} 3x + 2 = 0 \\ -2 \quad -2 \\ \hline 3x = -2 \\ \frac{3x}{3} = \frac{-2}{3} \\ x = -\frac{2}{3} \end{array}$$

$$\begin{array}{r} 2x + 3 = 0 \\ -3 \quad -3 \\ \hline 2x = -3 \\ \frac{2x}{2} = \frac{-3}{2} \\ x = -\frac{3}{2} \end{array}$$

$$\begin{array}{r|l} x & 36 \\ \hline & 9, 4 \end{array} \quad +13$$

$$\left\{ -\frac{2}{3}, -\frac{3}{2} \right\}$$

6. $2x^2 - 5x - 3 = 0$

$$(2x^2 - 6x) + (1x - 3) = 0 \quad \begin{array}{r|l} x-6 & +5 \\ \hline & -6,1 \end{array}$$

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

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

$$\begin{array}{r} 2x+1=0 \\ -1 \quad -1 \\ \hline 2x = -1 \\ \frac{2x}{2} = \frac{-1}{2} \\ x = -\frac{1}{2} \end{array} \quad \begin{array}{r} x-3=0 \\ +3 \quad +3 \\ \hline x = 3 \end{array}$$

$$\left\{ -\frac{1}{2}, 3 \right\}$$

$$7. \quad x^2 = 64$$

$$-64 - 64$$

$$x^2 - 64 = 0$$

$$(x-8)(x+8) = 0$$

$$\begin{array}{r} x - 8 = 0 \\ +8 \quad +8 \\ \hline x = 8 \end{array}$$

$$\begin{array}{r} x + 8 = 0 \\ -8 \quad -8 \\ \hline x = -8 \end{array}$$

$$\{8, -8\}$$

8. $4x^2 + 7x = 2$

$$\begin{array}{r} -2 \quad -2 \\ \hline 4x^2 + 7x - 2 = 0 \end{array}$$

$$(4x^2 - 1x)(8x - 2) = 0$$

$$x(4x - 1) + 2(4x - 1) = 0$$

$$(x + 2)(4x - 1) = 0$$

$$\begin{array}{r} x + 2 = 0 \\ -2 \quad -2 \\ \hline x = -2 \end{array}$$

$$\begin{array}{r} 4x - 1 = 0 \\ +1 \quad +1 \\ \hline 4x = 1 \\ \frac{4x}{4} = \frac{1}{4} \quad x = \frac{1}{4} \end{array}$$

$$\begin{array}{r|l} x - 8 & +7 \\ \hline -1, 8 & \end{array}$$

$$\left\{ -2, \frac{1}{4} \right\}$$

Write a quadratic equation with the given roots.

9. -2, 7

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

$$x^2 - 7x + 2x - 14 = 0$$

$$x^2 - 5x - 14 = 0$$

10. $\frac{-2}{3}, \frac{3}{4}$

$$(3x+2)(4x-3)=0$$

$$12x^2 - 9x + 8x - 6 = 0$$

$$12x^2 - x - 6 = 0$$

11. 0, -5

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

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

12. $\frac{1}{3}, 5$

$$(3x-1)(x-5)=0$$
$$3x^2 - 15x - 1x + 5 = 0$$
$$3x^2 - 16x + 5 = 0$$