

## Algebra II Worksheet #1 Unit 6 Selected Solutions

Perform the indicated operations.

1.  $x(x + 2) = \underline{x^2 + 2x}$

3.  $4x(x + 5) = \underline{4x^2 + 20x}$

6.  $5x(2x - 7) = \underline{10x^2 - 35x}$

8.  $-2x(4x - 3) = \underline{-8x^2 + 6x}$

Factor each of the following.

9.  $x^2 + 5x = \underline{x(x + 5)}$

12.  $2x^2 - 10x = \underline{2x(x - 5)}$

13.  $8x^2 + 12x = \underline{4x(2x + 3)}$

15.  $-5x^2 + 20x = \underline{-5x(x - 4)}$

Perform the indicated operations.

18.  $(x - 3)(x + 3) = \underline{x^2 - 9}$

20.  $(5x - 2)(5x + 2) = \underline{25x^2 - 4}$

Factor each of the following.

21.  $x^2 - 9 = \underline{(x + 3)(x - 3)}$

24.  $81x^2 - 1 = \underline{(9x + 1)(9x - 1)}$

Perform the indicated operations.

27.  $(x - 1)(x - 9) = \underline{x^2 - 10x + 9}$

30.  $(x + 2)(x - 5) = \underline{x^2 - 3x - 10}$

Factor each of the following.

33.  $x^2 + 5x + 6 = \underline{(x + 2)(x + 3)}$

36.  $x^2 - 10x + 21 = \underline{(x - 3)(x - 7)}$

39.  $x^2 + 3x - 18 = \underline{(x + 6)(x - 3)}$

42.  $x^2 - 6x + 9 = \underline{(x - 3)(x - 3)}$

Use the factoring method to solve each of the following equations. Show your process neatly organized.

45.  $6x^2 + 9x = 0$

48.  $16x^2 - 25 = 0$

51.  $x^2 + 10x + 16 = 0$

$$\begin{aligned} 3x(2x + 3) &= 0 \\ 3x &= 0 \text{ or } 2x + 3 = 0 \\ x &= 0 \text{ or } x = -3/2 \end{aligned}$$

$$\begin{aligned} (4x + 5)(4x - 5) &= 0 \\ 4x + 5 &= 0 \text{ or } 4x - 5 = 0 \\ x &= -5/4 \text{ or } x = 5/4 \end{aligned}$$

$$\begin{aligned} (x + 2)(x + 8) &= 0 \\ x + 2 &= 0 \text{ or } x + 8 = 0 \\ x &= -2 \text{ or } x = -8 \end{aligned}$$

54.  $x^2 - 3x - 28 = 0$

57.  $x^2 + 2x - 24 = 0$

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

$$\begin{aligned} (x + 4)(x - 7) &= 0 \\ x + 4 &= 0 \text{ or } x - 7 = 0 \\ x &= -4 \text{ or } x = 7 \end{aligned}$$

$$\begin{aligned} (x + 6)(x - 4) &= 0 \\ x + 6 &= 0 \text{ or } x - 4 = 0 \\ x &= -6 \text{ or } x = 4 \end{aligned}$$

$$\begin{aligned} (x - 6)(x - 6) &= 0 \\ x - 6 &= 0 \\ x &= 6 \end{aligned}$$