

*Assignment 5/4*

Directions: Solve each quadratic equation by factoring.

**Notes:**

- Using the skills we practiced last week, we are going to solve quadratic equations (find the values of  $x$  that make the equation equal zero.
- Steps:
  - Factor each polynomial completely.
  - Set each factor equal to zero.
  - Solve each equation.

**Example:**  $x^2 + 10x + 16 = 0$

$$(x + 8)(x + 2) = 0$$

$$x + 8 = 0 \quad x + 2 = 0$$

$$x = -8 \quad x = -2$$

**Example:**  $4x^2 + 12x = 0$

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

$$4x = 0 \quad x + 3 = 0$$

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

1.  $x^2 + 6x + 5 = 0$

2.  $5x^2 + 15x = 0$

3.  $16x^2 - 9 = 0$

4.  $x^2 - 11x + 28 = 0$

5.  $2x^2 + 11x + 12 = 0$

6.  $25x^2 - 81 = 0$

7.  $x^2 + 10x - 24 = 0$

8.  $3x^2 + 21x + 36 = 0$

*Assignment 5/5*

Directions: Simplify each radical

**Notes:** To simplify a radical

- Determine two factors (one of them has to be a perfect square)
- Simplify the perfect square

**Example:**  $\sqrt{20}$

$$\sqrt{4}\sqrt{5}$$

$$2\sqrt{5}$$

1.  $\sqrt{24}$

2.  $\sqrt{18}$

3.  $\sqrt{8}$

4.  $\sqrt{32}$

5.  $\sqrt{200}$

6.  $\sqrt{98}$

7.  $\sqrt{28}$

8.  $\sqrt{45}$

9.  $\sqrt{12}$

10.  $\sqrt{48}$

Assignment 5/6

Directions: Identify  $a$ ,  $b$ , and  $c$

**Example:**  $ax^2 + bx + c$

$$4x^2 + 10x - 5$$

$$a = 4 \quad b = 10 \quad c = -5$$

1.  $2x^2 + 10x + 3$

2.  $4x^2 - 8x + 11$

3.  $9x^2 + x + 5$

Directions: Solve each quadratic equation using the quadratic formula.

**Notes:**

- Quadratic formula  $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

- Steps:

- Identify  $a$ ,  $b$ , and  $c$
- Substitute into the quadratic formula
- Simplify the radical (if possible)
- Simplify the fraction (if possible)

4.  $x^2 - 4x - 2 = 0$

5.  $2x^2 + 5x - 4 = 0$

6.  $-4x^2 - 3x + 5 = 0$

7.  $3x^2 - 6x - 4 = 0$

*Assignment 5/7*

Directions: Add/subtract each of the polynomials.

**Notes:**

- When adding polynomials, combine like terms. Write terms in descending order.
- When subtracting polynomials, distribute the negative to the polynomial to its right and then combine like terms. Write terms in descending order.

1)  $(5p^2 - 3) + (2p^2 - 3p^3)$

2)  $(a^3 - 2a^2) - (3a^2 - 4a^3)$

3)  $(4 + 2n^3) + (5n^3 + 2)$

4)  $(4n - 3n^3) - (3n^3 + 4n)$

5)  $(3a^2 + 1) - (4 + 2a^2)$

6)  $(4r^3 + 3r^4) - (r^4 - 5r^3)$

7)  $(5a + 4) - (5a + 3)$

8)  $(3x^4 - 3x) - (3x - 3x^4)$

9)  $(-4k^4 + 14 + 3k^2) + (-3k^4 - 14k^2 - 8)$

10)  $(3 - 6n^5 - 8n^4) - (-6n^4 - 3n - 8n^5)$

*Assignment 5/8*

Directions: Multiply each of the polynomials

**Notes:**

- Use either the distributing method or the box method.
- Remember, add exponents when multiplying polynomials.
- Write terms in descending order.

1)  $6v(2v + 3)$

2)  $7(-5v - 8)$

3)  $2x(-2x - 3)$

4)  $-4(v + 1)$

5)  $(2n + 2)(6n + 1)$

6)  $(4n + 1)(2n + 6)$

7)  $(x - 3)(6x - 2)$

8)  $(8p - 2)(6p + 2)$

9)  $(6p + 8)(5p - 8)$

10)  $(3m - 1)(8m + 7)$