

Algebra Workshop

Name: _____

Worksheet 6

1. Multiply the following polynomials, and then simplify your answer.

(a) $(x^2 - 4x)(3x - 5)$

(b) $(x + 2)^2$

(c) $(x - 4)(x + 4)(x + 1)$

(d) $(x - 1)^3$

2. Factor the following polynomials:

(a) $3x^4 + 6x^2$

(b) $x^2 + 10x + 21$

(g) $x^3 - 11x^2 + 30x$

(h) $x^3 - 6x^2 + 8x$

3. Solve the following equations. (You do not need to use the quadratic formula for these problems.)

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

(b) $(2x + 3)(3x - 9) = 0$

(c) $(x^2 - 9)(x + 4) = 0$

(d) $x^2 + 13x + 42 = 0$

(e) $x^2 - 7x + 12 = 0$

(f) $x^3 - 5x^2 + 6x = 0$

(g) $x^2 - x = 6$

(h) $x^2 = 9x - 20$

4. Recall that the quadratic formula is:

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

Use the quadratic formula to solve the following equations.

(a) $4x^2 - 7x - 2 = 0$

(b) $3x^2 - 5x + 2 = 0$

(c) $3x^2 = 5x + 2$

5. Recall that the quadratic formula is:

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

Use the quadratic formula to solve the following equations. Give your answers as decimals to two decimal places.

(a) $x^2 + 3x + 1 = 0$

(b) $2x^2 - 6x + 3 = 0$

(c) $4x^2 = 3x + 5$