

**Quadratics Quiz 1
Review**Name _____
Assignment:**Multiply. Assume that variable exponents represent positive integers.**

1. $(2x - 7y)^2$ 2. $(5d^{2x} + g)(d^{2x} - 3g)$ 3. $(a + b)(a^2 - ab + b^2)$

Factor the following expressions completely. You MUST use Factoring Techniques and NOT FOILING.

4. $-2x^3 + 16x$ 5. $2x^2y - 6xy^2 + 3xy$ 6. $8x^2 - 14x - 15$

7. $6y^4 + 11y^2 - 21$ 8. $(3x + 2)^2 + 8(3x + 2) + 12$ 9. $2(a + b)^2 + 5(a + b) - 3$

10. $(x + 3)^2 - 16$ 11. $25a^2 - 36$ 12. $3x^3 - x^2 + 6x - 2$

13. $(x - 1)(x + 2)^2 - (x - 1)^2(x + 2)$ 14. $(a^2 + 2a)^2 - 2(a^2 + 2a) - 3$

Solve the following equations by factoring. No FOILING Techniques.

15. $x^2(x^2 - 1) - 9(x^2 - 1) = 0$ 16. $3x^3 = 27x$

17. $3x^3 + 5x^2 = 6x + 10$ 18. $(a^2 + 1)^2 - 7(a^2 + 1) = -10$

$$19. (3x + 4)^2 + 6(3x + 4) - 16 = 0$$

$$20. \left(\frac{2}{x}\right)^2 + 5\left(\frac{2}{x}\right) = 24$$

$$21. 5\left(\frac{x+2}{2}\right)^2 - 3\left(\frac{x+2}{2}\right) = 2$$

$$22. 2x - 3\sqrt{x} + 1 = 0$$

$$23. (\sqrt{y} - 3)(y - \sqrt{y} - 1) = \sqrt{y} - 3$$

$$24. (s^2 - 9)(s^4 - 3s^2 - 2) = 2(s^2 - 9)$$

Solve the following inequalities. Use Sign Analysis to verify your solutions and write your answers in Interval Notation.

$$25. 49 \geq x^2$$

$$26. 2x^2 - x - 15 > 0$$

$$27. x^2 > 3(x + 6)$$

Answers

$$1. 4x^2 - 28xy + 49y^2$$

$$2. 5d^{4x} - 14d^{2x}g - 3g^2$$

$$3. a^3 + b^3$$

$$4. -2x(x^2 - 8)$$

$$5. xy(2x - 6y + 3)$$

$$6. (2x - 5)(4x + 3)$$

$$7. (y^2 + 3)(6y^2 - 7)$$

$$8. (3x + 8)(3x + 4)$$

$$9. (2a + 2b - 1)(a + b + 3)$$

$$10. (x + 7)(x - 1)$$

$$11. (5a + 6)(5a - 6)$$

$$12. (3x - 1)(x^2 + 2)$$

$$13. 3(x - 1)(x + 2)$$

$$14. (a + 3)(a - 1)(a + 1)^2$$

$$15. x = \pm 1, \pm 3$$

$$16. x = 0, \pm 3$$

$$17. x = -\frac{5}{3}, \pm\sqrt{2}$$

$$18. x = \pm 1, \pm 2$$

$$19. x = -4, -\frac{2}{3}$$

$$20. x = -\frac{1}{4}, \frac{2}{3}$$

$$21. x = 0, -\frac{14}{5}$$

$$22. x = 1, \frac{1}{4}$$

$$23. y = 4, 9$$

$$24. s = \pm i, \pm 2, \pm 3 \text{ (} i \text{ is not necessary)}$$

$$25. [-7, 7]$$

$$26. \left(-\infty, -\frac{5}{2}\right) \cup (3, \infty)$$

$$27. (-\infty, -3) \cup (6, \infty)$$