Honors Algebra 1
Q3 Midterm Review
Chapter 9.1-9.6

Name: key
Period:

9.1 Name the following polynomials according to the degree and the number of terms.

1. $3x^4 - 8x + 1$ — 4th degree trinomial
2. $7x^2$ — quadratic monomial
3. $5y^3 - 3y$ — cubic binomial
4. 11

9.1 Add or Subtract the following polynomials.

5. $(2x^3 - 4x^2 + 7x - 10) + (4x^3 - 2x + 8)$

$2x^3 - 4x^2 + 7x - 10 + 4x^3 - 2x + 8$

$6x^3 - 4x^2 + 5x - 2$

6. $(2x^5 - 2x^3 + 9x) - (3x^5 - 7x^4 + 2x^3 - 4x + 1)$

$2x^5 - 2x^3 + 9x - 3x^5 + 7x^4 - 2x^3 + 4x - 1$

$-x^5 + 7x^4 - 4x^3 + 13x - 1$

9.2-9.3 Multiply Polynomials. Multiply the following expressions.

7. $(3x + 2)(2x - 1)$

$6x^2 - 3x + 4x - 2$

$6x^2 + x - 2$

8. $(2x - 5)^2$

$(2x - 5)(2x - 5)$

$4x^2 - 20x + 25$

9. $(x + 2)(x^2 - 3x - 7)$

$x^3 - 3x^2 - 7x + 2x^2 - 6x - 14$

$x^3 - x^2 - 13x - 14$

10. $(x - 2)(x + 2)$

$x^2 - 4$

9.4 Zero-Product Property. Solve each factored expression for x:

11. $2x(x - 7) = 0$

$2x = 0 \quad x - 7 = 0$

$\frac{2x}{2} = \frac{0}{2} \quad +7 \; +7$

$x = 0 \quad x = 7$

12. $(x + 1)(x - 10) = 0$

$x + 1 = 0 \quad x - 10 = 0$

$-1 \; -1 \quad +10 \; +10$

$x = -1 \quad x = 10$

13. $(1 - 2x)(x + 12) = 0$

$1 - 2x = 0 \quad x + 12 = 0$

$-1 \quad -1 \quad -12 \; -12$

$-2x = -1 \quad x = -12$

$\frac{-2x}{-2} = \frac{-1}{-2}$

$x = \frac{1}{2}$

9.4 Factor out a GCF of an Expression

14. $9a^3 + 15a^2$

$3a^2(3a + 5)$

15. $10x^5y^4 + 14x^3y^8 - 2xy$

$2xy(5x^4y^3 + 7x^2y^7 - 1)$

9.5-9.6 Factor and Solve a Quadratic Trinomial. Solve:

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

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

$x + 3 = 0 \quad x - 1 = 0$

$-3 \; -3 \quad +1 \; +1$

$x = -3 \quad x = 1$

17. $2x^2 - 11x - 21 = 0$

$(2x + 3)(x - 7) = 0$

$2x - 3 = 0 \quad x - 7 = 0$

$-3 \; -3 \quad +7 \; +7$

$2x = -3$

$\frac{2x}{2} = \frac{-3}{2}$

$x = -\frac{3}{2} \quad x = 7$

18. $x^2 - 2x - 5 = 2x$

$-2x \quad -2x$

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

$(x - 5)(x + 1) = 0$

$x - 5 = 0 \quad x + 1 = 0$

$x = 5 \quad x = -1$

19. $6x^2 + 5x = 6$

$-6 \quad -6$

$6x^2 + 5x - 6 = 0$

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

$3x - 2 = 0 \quad 2x + 3 = 0$

$x = \frac{2}{3} \quad x = -\frac{3}{2}$

20. $18x^3 + 24x^2 + 8x = 0$

$2x(9x^2 + 12x + 4) = 0$

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

$2x = 0 \quad 3x + 2 = 0 \quad 3x + 2 = 0$

$x = 0 \quad x = -\frac{2}{3} \quad x = -\frac{2}{3}$