

Name \_\_\_\_\_

Date \_\_\_\_\_

**Chapter 5**  
**Form A**

For problems 1 – 2, identify each polynomial as a monomial, binomial, or trinomial. Give the degree of the polynomial.

1.  $7x^4 - 4x^2$  1. \_\_\_\_\_

2.  $8x^3y^2 - 5x^2y + 3x$  2. \_\_\_\_\_

For problems 3 – 6, add or subtract as indicated.

3.  $(7x^5 - 4x^3 + 3x^2 - 4x) + (6x^3 - 2x^2 + 2x)$  3. \_\_\_\_\_

4.  $(5x^2 - 4xy + 2y) - (-x^2 + xy - 2y)$  4. \_\_\_\_\_

5. Subtract  $11x^3 - 8x + 3$  from  $9x^3 + 3x^2 - 2$  5. \_\_\_\_\_

6. Add  $14y^4 - 5y^3 + 18y^2 - 4y + 2$   
 $+ \quad \quad \quad y^3 - 4y^2 + 5y - 5$  6. \_\_\_\_\_

For problems 7 – 14, simplify each expression.

7.  $y^7 \cdot y^4$  7. \_\_\_\_\_

8.  $(-9y^3)^4$  8. \_\_\_\_\_

9.  $55x^0$  9. \_\_\_\_\_

10.  $(3x^{-3})^2(7x^4)$  10. \_\_\_\_\_

11.  $(3x^2y^{-3})(-5x^{-1}y^4)^2$  11. \_\_\_\_\_

12.  $\left(\frac{5x^2y^4}{2xy^6}\right)^2$  12. \_\_\_\_\_

13.  $3^{-2} + 2^{-1}$  13. \_\_\_\_\_

14.  $\frac{x^6 \cdot x^{-2}}{x^{-4}}$  14. \_\_\_\_\_

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For problems 15 – 19, find each product.

15.  $-3x^2y(6x^4y^3 - 5x^3y + 4y)$  15. \_\_\_\_\_

16.  $(2x + 3)(5x - 4)$  16. \_\_\_\_\_

17.  $(3t - 5)^2$  17. \_\_\_\_\_

18.  $(3a - 4b)(3a + 4b)$  18. \_\_\_\_\_

19.  $(5y - 2)(y^2 - 4y + 3)$  19. \_\_\_\_\_

For problems 20 – 21, divide.

20.  $\frac{12x^4 - 16x^3 + 8x}{4x}$  20. \_\_\_\_\_

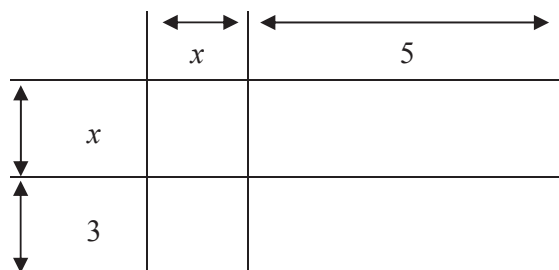
21.  $\frac{3x^3 + 5x^2 - 5x + 8}{3x - 1}$  21. \_\_\_\_\_

22. Write  $2.14 \times 10^{-4}$  in decimal notation. 22. \_\_\_\_\_

23. Write 1,457,000 in scientific notation. 23. \_\_\_\_\_

24. Simplify  $\frac{4.2 \times 10^5}{8.4 \times 10^{-3}}$  24. \_\_\_\_\_

25. Write a polynomial in descending powers of  $x$  that represents the area of the figure below. 25. \_\_\_\_\_



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**Chapter 6**  
**Form A**

For problems 1 – 13, factor completely or state that the polynomial is prime.

1.  $x^2 - x - 12$  1. \_\_\_\_\_

2.  $x^3 - 64x$  2. \_\_\_\_\_

3.  $12x^2 - 12xy + 3y^2$  3. \_\_\_\_\_

4.  $24x^2 - 22x - 10$  4. \_\_\_\_\_

5.  $9x^2 + 25$  5. \_\_\_\_\_

6.  $8x^3 - 125$  6. \_\_\_\_\_

7.  $x^2y^3 + x^2y^2 - 6x^2y - 6x^2$  7. \_\_\_\_\_

8.  $12x^2 + 4x - 5$  8. \_\_\_\_\_

9.  $x^4 - 625$  9. \_\_\_\_\_

10.  $x^3y + 2x^2y + xy$  10. \_\_\_\_\_

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11.  $4x^3 - 8x$  11. \_\_\_\_\_

12.  $x^2 + 5x - 6$  12. \_\_\_\_\_

13.  $y^3 - 4y^2 - 25y + 100$  13. \_\_\_\_\_

For problems 14 – 18, solve each quadratic equation.

14.  $x^2 + 13x + 36 = 0$  14. \_\_\_\_\_

15.  $12x^2 - 11x = 5$  15. \_\_\_\_\_

16.  $9x^2 = 25$  16. \_\_\_\_\_

17.  $x(x - 4) = 12$  17. \_\_\_\_\_

18.  $(2x - 7)(x - 2) = 5$  18. \_\_\_\_\_

19. A ball falls off the top of a roof 320 feet above the ground. The formula  $h = -16t^2 + 16t + 320$  describes the height of the ball above the ground,  $h$ , in feet,  $t$  seconds after the fall begins. How long will it take the ball to strike the ground?

 19. \_\_\_\_\_

20. The length of a rectangular garden is 6 feet greater than the width. The area of the rectangle is 135 square feet. Find the length and the width.

 20. \_\_\_\_\_

**Form A**

1. binomial; degree 4 2. trinomial; degree 5 3.  $7x^5 + 2x^3 + x^2 - 2x$  4.  $6x^2 - 5xy + 4y$   
5.  $-2x^3 + 3x^2 + 8x - 5$  6.  $14y^4 - 4y^3 + 14y^2 + y - 3$  7.  $y^{11}$  8.  $6561y^{12}$  9. 55 10.  $\frac{63}{x^2}$   
11.  $75y^5$  12.  $\frac{25x^2}{4y^4}$  13.  $\frac{11}{18}$  14.  $x^8$  15.  $-18x^6y^4 + 15x^5y^2 - 12x^2y^2$  16.  $10x^2 + 7x - 12$   
17.  $9t^2 - 30t + 25$  18.  $9a^2 - 16b^2$  19.  $5y^3 - 22y^2 + 23y - 6$  20.  $3x^3 - 4x^2 + 2$   
21.  $x^2 + 2x - 1 + \frac{7}{3x - 1}$  22. 0.000214 23.  $1.457 \times 10^6$  24.  $5 \times 10^7$  25.  $x^2 + 8x + 15$

**Form A**

1.  $(x - 4)(x + 3)$  2.  $x(x + 8)(x - 8)$  3.  $3(2x - y)^2$  4.  $2(3x + 1)(4x - 5)$  5. Prime  
6.  $(2x - 5)(4x^2 + 10x + 25)$  7.  $x^2(y^2 - 6)(y + 1)$  8.  $(6x + 5)(2x - 1)$   
9.  $(x^2 + 25)(x + 5)(x - 5)$  10.  $xy(x + 1)^2$  11.  $4x(x^2 - 2)$  12.  $(x + 6)(x - 1)$   
13.  $(y - 4)(y + 5)(y - 5)$  14. -9, -4 15.  $-\frac{1}{3}, \frac{5}{4}$  16.  $-\frac{5}{3}, \frac{5}{3}$  17. -2, 6 18. 1,  $\frac{9}{2}$   
19. 5 sec 20. width 9 ft.; length 15 ft.