

EXTRA PRACTICE 20
Division of Polynomials
Use after Section 4.8

Name _____

Examples: Divide.

a)

$$(15x^6 - 10x^4 + 35x^3) \div 5x^3$$

$$\frac{15x^6 - 10x^4 + 35x^3}{5x^3}$$

$$= \frac{15x^6}{5x^3} - \frac{10x^4}{5x^3} + \frac{35x^3}{5x^3}$$

$$= 3x^3 - 2x + 7$$

Answer: $3x^3 - 2x + 7$

b)

$$(x^4 - 2x^2 + 5x - 6) \div (x + 2)$$

$$\begin{array}{r} x^3 - 2x^2 + 2x + 1 \\ x + 2 \overline{) x^4 + 0x^3 - 2x^2 + 5x - 6} \end{array}$$

$$\begin{array}{r} x^4 + 2x^3 \\ \underline{-2x^3 - 2x^2} \end{array}$$

$$\begin{array}{r} -2x^3 - 4x^2 \\ \underline{-2x^3 - 4x^2} \end{array}$$

$$2x^2 + 5x$$

$$\underline{2x^2 + 4x}$$

$$x - 6$$

$$\underline{x + 2}$$

$$-8$$

Answer: $x^3 - 2x^2 + 2x + 1$, R -8 , or

$$x^3 - 2x^2 + 2x + 1 + \frac{-8}{x + 2}$$

Divide.

1. $\frac{32x^4 - 4x^2}{8} =$ _____

2. $\frac{3x^5 + 30x^3 + 18x}{6} =$ _____

3. $\frac{y - 4y^2 + y^4}{y} =$ _____

4. $\frac{27x^8 - 15x^4 + 3x^2}{x^2} =$ _____

5. $(25x^7 - 20x^4 + 15x^2) \div (-5x^2) =$

6. $(36y^5 + 27y^4 - 18y^3) \div (9y^2) =$

7. $\frac{8r^2s^2 + 10rs^3 - 6r^2s}{-2rs} =$ _____

8. $\frac{7x^3y^2 - 21x^2y + 35x^3y^4}{7x^2y} =$ _____

EXTRA PRACTICE 20 (continued)
Division of Polynomials
Use after Section 4.8

9. $(x^2 + 3x - 28) \div (x - 4) =$

10. $(x^2 - 16x + 64) \div (x - 8) =$

11. $\frac{x^2 - 81}{x + 9} =$ _____

12. $\frac{x^2 - 121}{x - 11} =$ _____

13. $(x^2 + 7x + 15) \div (x - 5) =$

14. $(x^2 + 12x - 18) \div (x - 3) =$

15. $\frac{10x^3 - 11x^2 + 19x + 10}{5x + 2} =$

16. $\frac{12x^3 - 16x^2 - 27x + 36}{3x - 4} =$

17. $(x^4 - 2x^2 + 3) \div (x - 1) =$

18. $(x^4 + 5x^2 + 2) \div (x + 2) =$

19. $(x^6 - 5x^3 - 36) \div (x^3 + 4) =$

20. $(x^6 + 2x^3 - 10) \div (x^3 - 2) =$

21. $(x^4 - 81) \div (x + 3) =$

22. $(x^3 - 64) \div (x - 4) =$

23. $(a^3 - 5a^2 + 25a - 125) \div (a - 5) =$

24. $(a^3 - 5a^2 + 25a - 125) \div (a + 5) =$
