

Chapter 6 Review #1 (Do All Odd Only)

6.1: Integer Exponents

5. The diameter of a certain bearing is 2^{-5} in. Simplify this expression.

Simplify.

6. $(3.6)^0$ 7. $(-1)^{-4}$
8. 5^{-3} 9. 10^{-4}

Evaluate each expression for the given value(s) of the variable(s).

10. b^{-4} for $b = 2$ 11. $\left(\frac{2}{5}b\right)^{-4}$ for $b = 10$
12. $-2p^3q^{-3}$ for $p = 3$ and $q = -2$

Simplify.

13. m^{-2} 14. bc^0
15. $-\frac{1}{2}x^{-2}y^{-4}$ 16. $\frac{2b^6}{c^{-4}}$
17. $\frac{3a^2c^{-2}}{4b^0}$ 18. $\frac{q^{-1}r^{-2}}{s^{-3}}$

6.2: Rational Exponents

Simplify each expression.

19. $81^{\frac{1}{2}}$
20. $343^{\frac{1}{3}}$
21. $64^{\frac{2}{3}}$
22. $(2^6)^{\frac{1}{2}}$

Simplify each expression. All variables represent nonnegative numbers.

23. $\sqrt[5]{z^{10}}$
24. $\sqrt[3]{125x^6}$
25. $\sqrt{x^8y^6}$
26. $\sqrt[3]{m^6n^{12}}$

6-3 Polynomials

Write each polynomial in standard form and give the leading coefficient.

1. $4r^2 + 2r^6 - 3r$ 2. $y^2 + 7 - 8y^3 + 2y$ 3. $-12t^3 - 4t + t^4$
4. $n + 3 + 3n^2$ 5. $2 + 3x^3$ 6. $-3a^2 + 16 + a^7 + a$

Classify each polynomial according to its degree and number of terms.

7. $2x^3 + 5x - 4$ 8. $5b^2$ 9. $6p^2 + 3p - p^4 + 2p^3$
10. $x^2 + 12 - x$ 11. $-2x^3 - 5 + x - 2x^7$ 12. $5 - 6b^2 + b - 4b^4$

13. **Business** The function $C(x) = x^3 - 15x + 14$ gives the cost to manufacture x units of a product. What is the cost to manufacture 900 units?

6-4 Adding and Subtracting Polynomials

Add or subtract.

14. $(10m^3 + 4m^2) + (7m^2 + 3m)$ 15. $(3t^2 - 2t) + (9t^2 + 4t - 6)$
16. $(12d^6 - 3d^2) + (2d^4 + 1)$ 17. $(6y^3 + 4y^2) - (2y^2 + 3y)$
18. $(7n^2 - 3n) - (5n^2 + 5n)$ 19. $(b^2 - 10) - (-5b^3 + 4b)$

6-5 Multiplying Polynomials

Multiply.

21. $2h^3 \cdot 5h^5$

22. $(s^8 t^4)(-6st^3)$

23. $2ab(5a^3 + 3a^2 b)$

24. $(3k + 5)^2$

25. $(2x^3 + 3y)(4x^2 + y)$

26. $(p^2 + 3p)(9p^2 - 6p - 5)$

27. **Geometry** Write a simplified polynomial expression for the area of a parallelogram whose base is $(x + 7)$ units and whose height is $(x - 3)$ units.

28. $(d + 9)^2$

29. $(3 + 2t)^2$

30. $(2x + 5y)^2$

31. $(m - 4)^2$

32. $(a - b)^2$

33. $(3w - 1)^2$

34. $(c + 2)(c - 2)$

35. $(5r + 6)(5r - 6)$