

Practice 5-9

Powers of Products and Quotients

Simplify each expression.

1. $(\frac{5}{6})^2$ _____

2. $(-\frac{4}{9})^2$ _____

3. $(\frac{x^2}{5})^3$ _____

4. $(2x)^3$ _____

5. $(-3y^2)^2$ _____

6. $(5ab^2)^3$ _____

7. $(12mn)^2$ _____

8. $(-10xy^3)^3$ _____

9. $(9qrs^4)^3$ _____

10. $(\frac{2x}{9y})^2$ _____

11. $-(a^2b^2)^3$ _____

12. $(2a^3b^2)^4$ _____

13. $(\frac{2x}{y})^2$ _____

14. $(-\frac{3x}{8y})^2$ _____

15. $(\frac{3y^2}{x})^3$ _____

16. $(\frac{2x^2y}{xy^3})^5$ _____

Evaluate for $a = 2$, $b = -1$, and $c = \frac{1}{3}$.

17. $(a^2)^3$ _____

18. $2b^3$ _____

19. $(-9c^2)^3$ _____

20. $(a^2b)^2$ _____

21. $(ac)^2$ _____

22. $(b^3)^7$ _____

Complete each equation.

23. $(3b \text{ _____})^2 = 9b^{10}$

24. $(m^2n) \text{ _____} = m^8n^4$

25. $(xy \text{ _____})^2 = x^2y^6$

26. $(\frac{3s^2t}{r}) \text{ _____} = \frac{9s^4t^2}{r^2}$

27. Write an expression for the area of a square with a side of length $4a^2$. Simplify your expression.

28. Write an expression for the volume of a cube with a side of length $3z^5$. Simplify your expression.
