

7-3

Reteaching (continued)

More Multiplication Properties of Exponents

Exercises

Simplify each expression.

1. $(y^2)^3$
 y^6

2. $(v^9)^6$
 v^{54}

3. $(h^4)^5$
 h^{20}

4. $(n^4)^{11}$
 n^{44}

5. $(p^{-1})^5$
 $\frac{1}{p^5}$

6. $(z^3)^{-6}$
 $\frac{1}{z^{18}}$

7. $(x^{-4})^{-5}x$
 x^{21}

8. $(f^5)^{-1}f^8$
 f^3

9. $(3a^2)^4$
 $81a^8$

10. $(6c)^{-3}$
 $\frac{1}{216c^3}$

11. $(7k)^0$
 1

12. $(10s^{\frac{3}{2}})^2$
 $100s^3$

13. $(2y^{-5})^3(x^{11}y^{-10})^2$
 $\frac{8x^{22}}{y^{35}}$

14. $u^{-9}(u^{-1}v)^4u^{-5}$
 $\frac{v^4}{u^{18}}$

15. $(x^{13}y^6)^{-2}(y^{-5}x^{10})^6$
 $\frac{x^{34}}{y^{42}}$

16. $4m^0n^0(6m^5)^2$
 $144m^{10}$

Simplify. Write each answer in scientific notation.

17. $(2 \times 10^{-8})^3$
 8×10^{-24}

18. $(3 \times 10^5)^3$
 2.7×10^{16}

19. $(9 \times 10^{-15})^3$
 7.29×10^{-43}

20. $(6 \times 10^5)^2$
 3.6×10^{11}

21. $(6.7 \times 10^{11})^2$
 4.489×10^{23}

22. $(9.5 \times 10^7)^3$
 8.57375×10^{23}

23. $(4.7 \times 10^{-11})^{-2}$
 4.53×10^{20}

24. $(5.14 \times 10^6)^2$
 2.64196×10^{13}

25. The radius of a cylinder is 6.8×10^5 m. The height of the cylinder is 2.2×10^3 m. What is the volume of the cylinder? (Hint: $V = 3.14r^2h$)

$3.19426 \times 10^{15} \text{ m}^3$

Complete each equation.

26. $(y^3)^\square = y^{\frac{3}{2}}$
 $\frac{1}{2}$

27. $(6p^3q^\square)^2 = 36p^6$
 0

28. $(4a^\square)^3 = 64a^{-6}$
 -2

29. $(k^{11})^\square = 1$
 0

30. $(t^{-8})^\square = t^{16}$
 -2

31. $15(c^{-1})^\square = 15c^{10}$
 -10