NAME _____ DATE _____

Practice A

For use with pages 323–328

Use the properties of exponents to evaluate the expression.

1. $3^4 \cdot 3^5$

2. $2^6 \cdot 2^2$

3. $4^3 \cdot 4^2$

4. $4^{-1} \cdot 4^4$

5. $2^{-5} \cdot 2^3$

6. $5^{-7} \cdot 5^8$

7. $6^{-2} \cdot 6^{-1}$

8. $3^{-2} \cdot 3^{-3}$

9. $2^{-4} \cdot 2^{-3}$

10. $(-3)^2(-3)^3$

11. $(-5)^{-6}(-5)^8$

12. $(-2)^{-3}(-2)^{-2}$

13. $\dfrac{5^4}{5^2}$

14. $\dfrac{7^6}{7^9}$

15. $\dfrac{3^5}{3^5}$

16. $\dfrac{(-2)^8}{(-2)^3}$

17. $\dfrac{(-3)^3}{(-3)^4}$

18. $(5^2)^3$

19. $(2^4)^2$

20. $(3^2)^3$

21. $\left(\dfrac{1}{3}\right)^4$

22. $\left(\dfrac{3}{2}\right)^3$

23. $\left(-\dfrac{2}{5}\right)^2$

24. $\left(-\dfrac{1}{4}\right)^3$

25. 13^0

26. $\left(\dfrac{4}{5}\right)^0$

27. 3^{-2}

28. 4^{-3}

29. $\left(\dfrac{3}{4}\right)^{-2}$

30. $\left(\dfrac{2}{3}\right)^{-4}$

Simplify the expression.

31. $x^3 \cdot x^5$

32. $x^4 \cdot x^8$

33. $(x^4)^6$

34. $(3x)^3$

35. $\left(\dfrac{x}{2}\right)^4$

36. $\dfrac{x^7}{x^2}$

37. $\dfrac{x^3}{x^9}$

38. $\left(\dfrac{3}{x}\right)^2$

39. $\left(\dfrac{x}{4}\right)^{-2}$

Surface Area   **In Exercises 40–42, use the formula $S = 4\pi r^2$ to find the surface area of each planet.**

40. The radius of Jupiter is approximately 44,366 miles. Find the surface area of Jupiter.

41. The radius of Earth is approximately 3863 miles. Find the surface area of Earth.

42. The radius of Mars is approximately 2110 miles. Find the surface area of Mars.