

Name _____

Date _____

REVIEW: Chapter 1 – Exponents

Math 8

Write each of the following products using exponents.

1. $x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x$

2. $(-8)(-8)(-8)(-8)(-8)$

3. $\frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2}$

4. $m \cdot m \cdot m \cdot m$

Simplify each expression. Write your answer in exponential notation.

5. $(-7) \cdot (-7)^5$

6. $(m^2)^{11}$

7. $8x^4 \cdot 4x$

8. $(-5x^3)^2$

9. $(3^4)^7$

10. $12^6 \cdot 12^6$

11. $\frac{x^{20}}{x \cdot x^{14}}$

12. $\frac{x^{17} \cdot x^2}{x^3}$

13. $\frac{11^6 \cdot 11^4}{(11^5)^2}$

14. $\frac{4^{10} \cdot 4^{-3}}{4^6}$

15. $\frac{(4x \cdot 2x^4)^2}{(2x^3)^3}$

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

Simplify each expression. Write the expression using only a positive, when necessary.

17. 9^0

18. $(7x)^0$

19. $7x^0$

20. 8^{-2}

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

22. $6x^{-3}$

23. $\frac{20x^5}{4x^9}$

24. $\frac{35x^{11}}{7x^{17}}$

25. $\frac{10x^3}{25x^4}$

Find the two square roots for each.

26. $\pm\sqrt{16}$

27. $\pm\sqrt{100}$

28. $\pm\sqrt{121}$

29. $\pm\sqrt{64}$

30. $\pm\sqrt{169}$

31. $\pm\sqrt{36}$

Find the cube root for each.

32. $\sqrt[3]{8}$

33. $\sqrt[3]{729}$

34. $\sqrt[3]{-64}$

35. $\sqrt[3]{512}$

36. $\sqrt[3]{-125}$

37. $\sqrt[3]{-8}$

38. Given the following expressions: -5^2 , 5^{-1} , $(-2)^3$ order them from least to greatest.

40. The area of a round mat is 100π square inches. What is the diameter of the mat?

41. A certain pond has a volume of 1,000 or 10^3 cubic gallons. A certain lake has a volume of 10,000,000 or 10^7 cubic gallons.

a. A similar lake has a volume of 100,000 cubic gallons. Express this volume capacity as 10 raised to a power. (2 points)

b. How many times greater is the lake's volume than the pond's volume? Express your answer in exponential notation. (2 points)

42. A storage container has a height of 8^6 units, a width of 8^3 units and a length of 8^{10} units. What is the volume of the storage container in exponential form.