

* Do all problems. Be sure to show work for the problems with answers given.

Name _____

Date _____

LESSON 7.1

Practice C

Simplify the expression. Write your answer using exponents.

1. $10^3 \cdot 10^5 \cdot 10$

2. $(-7) \cdot (-7)^3 \cdot (-7)^4$

3. $(4^8)^7$

4. $[(-6)^6]^3$

5. $(20 \cdot 31)^5$

6. $[(x - 8)^2]^4$

Simplify the expression.

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

11. $[(c + 5)^3]^6$

$-64c^{21}$ 12. $(-4c^7)^3$

$-64c^{21}$ 13. $-(4c^7)^3$

$625x^{32}y^{20}$ 14. $(5x^8y^5)^4$

$-100,000a^{35}b^5$ 15. $(-10a^7b)^5$

$250p^{13}$

16. $(5p^3)^3 \cdot 2p^4$

$10m^{34}$

17. $10m^4 \cdot (-m^5)^6$

$-2304x^{21}$

18. $(6x^3)^2(-4x^5)^3$

10^6 texts

19. There are 76,451 students at a local university. Each student on average sends 17 text messages per day. Use order of magnitude to estimate the total amount of text messages sent by the student body per day.

10^9 bubbles

20. There are about 954,930 air bubbles in 1 cubic centimeter of ice cream. There are about 946 cubic centimeters in 1 quart. Use order of magnitude to find the approximate number of air bubbles in 1 quart of ice cream.

10^{26} m

21. The order of magnitude of the radius of our solar system is 10^{13} meters. The order of magnitude of the radius of the visible universe is 10^{13} times as great. Find the approximate radius of the visible universe.

10^{16} grains

22. There are about 1 billion grains of sand in 1 cubic foot of sand. In 1995 a stretch of beach at the Sleeping Bear Dunes National Lakeshore in Michigan slid into Lake Michigan. Scientists believe that around 35 million cubic feet of sand fell into the lake. Use order of magnitude to find about how many grains of sand slid into the lake.