Name KEY

Chapter 1 Review

Date _____

Math 8

Expand and evaluate each expression.

1. $(-\frac{1}{2})^5$ $(-\frac{1}{5})(-\frac{1}{5})(-\frac{1}{5})(-\frac{1}{5})(-\frac{1}{5}) = -\frac{1}{3125}$

2. 7^4 $(7)(7)(7)(7) = 2401$

3. $(1.5)^2$ $(1.5)(1.5) = 2.25$

4. $\left(\frac{1}{6}\right)^3$ $\left(\frac{1}{6}\right)\left(\frac{1}{6}\right)\left(\frac{1}{6}\right) = \frac{1}{216}$

Evaluate the expression.

5. $2 \cdot 10^2 + 7 \cdot 10^0 + 5 \cdot 10^{-1} + 2 \cdot 10^{-2}$

$2 \cdot 100 + 7 \cdot 1 + 5 \cdot \frac{1}{10} + 2 \cdot \frac{1}{100}$

$200 + 7 + \frac{1}{2} + \frac{1}{50} = \frac{5188}{25}$ or 207.52

6. $3 \cdot 10^3 + 5 \cdot 10^2 + 4 \cdot 10^{-1} + 1 \cdot 10^{-2}$

$3 \cdot 1000 + 5 \cdot 100 + 4 \cdot \frac{1}{10} + 1 \cdot \frac{1}{100}$

$3000 + 500 + \frac{2}{5} + \frac{1}{100} =$

3500.41

Simplify each expression.

7. $9x^8y^6 \cdot 7x^{-2}y$ $(9 \cdot 7)(x^8 \cdot x^{-2})(y^6 \cdot y)$ $63x^6y^7$

8. $16m^{10}y^9 \cdot 2m^{-4}y^{-6}$ $(16 \cdot 2)(m^{10} \cdot m^{-4})(y^9 \cdot y^{-6})$ $32m^6y^3$

9. $\frac{30x^{11}y^{-4}}{5x^{-2}y^6}$ $\left(\frac{30}{5}\right)\left(\frac{x^{11}}{x^{-2}}\right)\left(\frac{y^{-4}}{y^6}\right)$ $\frac{6x^{13}y^{-10}}{1} \rightarrow \frac{6x^{13}}{y^{10}}$

10. $\frac{28x^{12}y^{-5}}{4x^{-6}y^9}$ $\left(\frac{28}{4}\right)\left(\frac{x^{12}}{x^{-6}}\right)\left(\frac{y^{-5}}{y^9}\right)$ $\frac{7x^{18}y^{-14}}{1} \rightarrow \frac{7x^{18}}{y^{14}}$

Solve.

11. $x^2 = 225$

$x = 15$ and -15

12. $x^2 = \frac{16}{25}$ $x = \frac{4}{5}$ and $-\frac{4}{5}$

13. $x^3 = 1000$

$x = 10$

14. $x^3 = \frac{343}{512}$

$x = \frac{7}{8}$

Evaluate.

15. -5^3 $-(5)(5)(5) = -125$

16. $\frac{5^{-2}}{1}$ $\frac{1}{5^2} = \frac{1}{5 \cdot 5} = \frac{1}{25}$

17. $(-4)^3$ $(-4)(-4)(-4) = -64$

18. Order #15-17 from least to greatest.

$-5^3, (-4)^3, 5^{-2}$

19. The area of a square is 22,500 square meters. What is the perimeter of the square?

150 × 22,500 ×

150

$x^2 = 22500$

$\sqrt{22500} = 150$

$150 + 150 + 150 + 150 = P$

$P = 600\text{ m}$

20. The area of a round mat is 81π square inches. What is the diameter of the mat?

81π

$A = \pi r^2$

$\frac{\pi r^2}{\pi} = \frac{81\pi}{\pi}$

$r^2 = 81$

$r = 9$

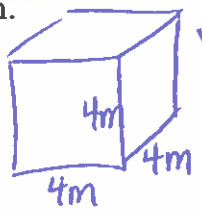
$d = 2r$

$d = 2(9)$

$d = 18$

$d = 18$

21. The side length of a cube is 4m millimeters. If the cube has a volume of 13,824 cubic millimeters, find the value of m.



$V = 13824$

$4m \cdot 4m \cdot 4m = 13824$

$\frac{4m^3}{64} = \frac{13824}{64}$

$m^3 = 216$

$m = 6$