

Review for Exponents

1) Express the following using exponents.

a. $2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2$

b. $\frac{1}{x}$

c. $5 \cdot 5 \cdot m \cdot m \cdot n \cdot n \cdot n \cdot n$

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

2) Express the following without using exponents.

a. $2^3 x^2$

b. 4^{-3}

c. $\left(\frac{3}{4}\right)^3$

d. x^{-5}

Simplify. Your answer should contain only positive exponents.

3) $3^2 \cdot 3^2$

4) $2^{-2} \cdot 2^4$

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

6) $(3^3)^2$

7) $\frac{2^3}{2^{-1}}$

8) $\frac{4^{-4}}{4^2}$

9) $2n^{-4} \cdot 3n^{-3}$

10) $4m^3 \cdot m^2 \cdot 4m$

11) $(r^{-3})^3$

12) $(4a^4)^2$

13) $-\frac{4x^0}{4x^2}$

14) $\frac{3n^2}{-n^3}$

15) $-2y^2 \cdot 4y^{-3}$

16) $4m^{-2}n^2 \cdot 4m^4$

17) $(-4x^3y^0)^2$

18) $(-x^4y^2)^3$

19) $\frac{4x^0y^4}{-4x^{-4}}$

20) $\frac{4yx^2}{2yx^0}$

21) $(2x^3)^3 x^{-1}$

22) $\frac{4r^4 \cdot r^{-2}}{r^4}$

23) $\left(\frac{2x^4}{2x^2}\right)^3$

24) $\frac{(-2a^4)^2}{a^3 \cdot -2a^4}$

Simplify. Write each answer in scientific notation.

25) $(5.8 \times 10^9)(3 \times 10^{-5})$

26) $(2 \times 10^{-9})(6 \times 10^9)$

27) $\frac{7 \cdot 10^{12}}{2.5 \cdot 10^7}$

28) $\frac{8.8 \times 10^{-7}}{8 \times 10^{-1}}$

29) $(8 \cdot 10^{-5})^4$

30) $(3 \cdot 10^2)^9$

Express in scientific notation

31) 5,555,000,000

32) 0.0072

Express in standard notation (decimal notation).

33) 5×10^{-5}

34) 8.35×10^6

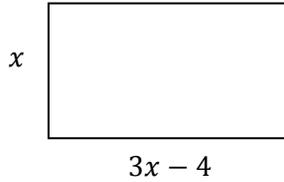
REVIEW APPLICATIONS

Find the area of the following rectangles:

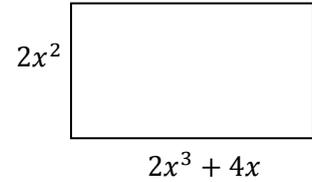
1.



2.

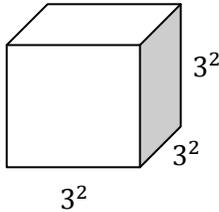


3.

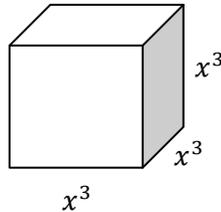


Find the volume of the following cubes:

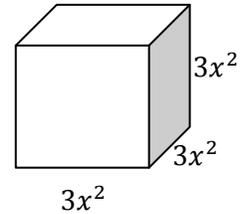
4.



5.



6.



EXPAND

Expand the following to simplify. SHOW WORK!

7. $(3xy^3)^2(2x^4y^2) =$

RULE

Use the rules to simplify.

8. $(-5x^7y^2z)^4(4xy^0z^9)^3 =$

9. List the elements in order from least to concentration to greatest concentration.

Elements in Seawater	Concentration (parts per million)
Sulfur	904
Chloride	1.95×10^4
Magnesium	1.29×10^3
Sodium	10,770