

Simplify the following.

1.
$$\frac{a^{-3}b^4c^1}{a^2b^3c^1}$$

$$\frac{a^3a^2b^3c}{b^4}$$

$$\frac{a^{3+2}b^3c}{b^4}$$

$$\frac{a^5 \cdot \cancel{b} \cdot \cancel{b} \cdot \cancel{b} \cdot \cancel{b} \cdot c}{a^5 \cdot b \cdot b \cdot b \cdot c}$$

$$\boxed{\frac{b}{a^5c}}$$

2.
$$\frac{3^8 \cdot 3^{-6}}{3^3}$$

$$\frac{3^8}{3^3 \cdot 3^6}$$

$$\frac{3^8}{3^{3+6}}$$

$$\frac{3^8}{3^9}$$

$$\boxed{\frac{1}{3}}$$

3.
$$2^{-4} \cdot 2^7 \cdot 2^{-5} \cdot 2^1 \cdot 2^{-2}$$

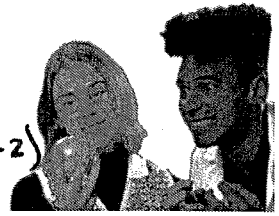
$$-4 + 7 + (-5) + 1 + (-2)$$

$$2^{8 + (-11)}$$

$$2^{-3}$$

$$\frac{1}{2^3}$$

$$\boxed{\frac{1}{8}}$$



Solve the following for the indicated variable.



4. $x^2 = \sqrt{144}$

$$\boxed{x = \pm 12}$$

5. $\sqrt[3]{p^3} = \sqrt[3]{216}$

$$\boxed{p = 6}$$

6. $\sqrt[3]{m^3} = \sqrt[3]{-1}$

$$\boxed{m = -1}$$

Determine how many times as great Quantity A is compared to Quantity B.

7. Quantity A: 6×10^9
 Quantity B: 3×10^7

$$\frac{6 \times 10^9}{3 \times 10^7}$$

$$2 \times 10^{9-7}$$

$$2 \times 10^2$$

$$2 \times 100$$

$$200$$

IT IS 200 TIMES LARGER

8. Quantity A: 7×10^{15}
 Quantity B: 7×10^9

$$\frac{7 \times 10^{15}}{7 \times 10^9}$$

$$1 \times 10^{15-9}$$

$$1 \times 10^6$$

$$1,000,000$$

IT IS 1,000,000 TIMES LARGER

9. Quantity A: 8×10^2
 Quantity B: 4×10^{-2}

$$\frac{8 \times 10^2}{4 \times 10^{-2}}$$

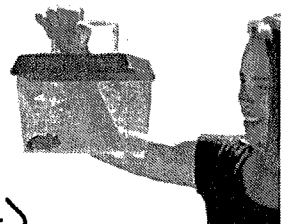
$$2 \times 10^{2-(-2)}$$

$$2 \times 10^{2+2}$$

$$2 \times 10^4$$

$$20,000$$

IT IS 20,000 TIMES LARGER.



Evaluate the following. Express answers in scientific notation.



10. $9.3 \times 10^6 - 6,000,000$

$$\begin{array}{r} 9300000 \\ - 6000000 \\ \hline 3300000 \\ \hline \boxed{3.3 \times 10^6} \end{array}$$

11. $(5,400)(6 \times 10^5)$

12. $\frac{3.2 \times 10^4}{6.4 \times 10^7}$

Determine the slope AND rate of change of each relation.

13.

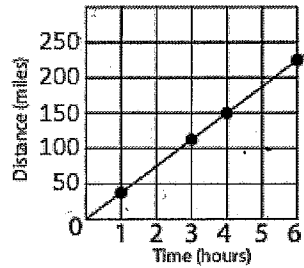
Number of Avocados	Cost (\$)
2	2.40
4	4.80
6	7.20
8	9.60

14. $n = 17.5h$

n is total amount earned (in \$)

h is number of hours spent babysitting

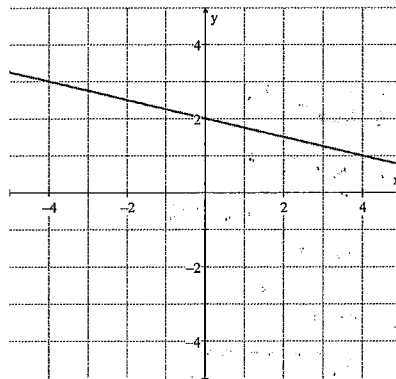
15.



Determine the slope & y-intercept of each relation.

16. $y = 2x - 3$

17.



18.

x	y
0	-4
1	-7
2	-10
3	-13

