

Unit 1 Review of Exponents

Simplify. Your answer should contain only positive exponents.

1)  $3n \cdot 2n^2 = 6n^3$

2)  $\frac{3x}{x^3} = \frac{3}{x^2}$

3)  $\frac{v^3}{(v^3)^2} = \frac{v^3}{v^6} = \frac{1}{v^3}$

4)  $\frac{(2a)^3}{a^3 b^2 \cdot b} = \frac{8a^3}{a^3 b^3} = \frac{8}{b^3}$

5)  $\left(\frac{2a^3 b^3}{a^3 \cdot a^2 b^3}\right)^2 = \frac{4a^6 b^6}{a^{10} b^6} = \frac{4}{a^4}$

6)  $4a^2 b^3 \cdot a^3 b^4 = 4a^5 b^7$

7)  $(2m^3 n^2)^3 = 8m^9 n^6$

8)  $\frac{(y^3)^2}{x^4 y^4} = \frac{y^6}{x^4 y^4} = \frac{y^2}{x^4}$

9)  $\frac{a^3 b^4}{(a^2 b^4)^3} = \frac{a^3 b^4}{a^6 b^{12}} = \frac{1}{a^3 b^8}$

10)  $\frac{2x^4 y^3}{x^{-1} y^0} = 2x^5 y^3$

11)  $\frac{x^{-1} y^2}{4x^{-4}} = \frac{x^3 y^2}{4}$

12)  $(4m^0 n^2)^{-3} = \frac{1}{64n^6}$

13)  $2x^3 y^{-4} \cdot 2x^3 = \frac{4x^6}{y^4}$

14)  $\frac{(yx^3)^3}{2y^{-4} \cdot 2x^{-1}} = \frac{y^3 x^9 y^4 x^1}{4} = \frac{x^{10} y^7}{4}$

15)  $\left(\frac{(2x^4 y^{-3} z^{-2})^2}{zx^3 y^4}\right)^{-4} = \left(\frac{4x^8 y^{-6} z^{-4}}{zx^3 y^4}\right)^{-4} = \left(\frac{4x^5}{y^{10} z^5}\right)^{-4}$

16)  $4n^2 \cdot 4n^{-3} = \frac{16}{n}$

17)  $(2r^3)^{-2} = \frac{1}{4r^6}$

$\frac{y^{40} z^{20}}{256x^{20}}$

18)  $2p^{-2} q^{-3} r^2 = \frac{2r^2}{p^2 q^3}$

19)  $x^{-3} y^{-2} z^3 = \frac{z^3}{x^3 y^2}$