

Division Properties of Exponents Assignment

Simplify the following expressions.

1. $\frac{k^{10}}{k^6}$

2. $\frac{ab^2}{a^3b}$

3. $\frac{g^4}{g^{-2}}$

4. $\frac{2^5}{2^3}$

5. $\frac{5^2}{5^5}$

6. $\frac{5^2x^4}{5^4x^2}$

7. $\frac{6^3v^4w^5}{6v^7w^3}$

8. $\frac{3^3a^4b^5}{3^5a^2b^3}$

9. $\frac{3^{-3}}{3^{-7}}$

10. $\frac{r^{-7}}{r^{-3}}$

Division Properties of Exponents Assignment

Evaluate the following using properties of powers.

11. $\left(\frac{4a^3}{2a^2}\right)^3$

12. $\left(\frac{3xy^2}{9x^4}\right)^2$

13. $\left(\frac{x^5}{2x^3}\right)^2$

14. $\left(\frac{-2x^2}{x^4}\right)^3$

15. $\left(\frac{12x^3y^4z}{18x^2y^6}\right)^2$

16. $\left(\frac{10y^2}{y}\right)\left(\frac{4xy^4}{xy^3}\right)$

17. $\left(\frac{12x^3y^2}{ab}\right)\left(\frac{a^6b^5}{4x^4y^4}\right)$

18. $\left(\frac{20cd}{ab^3}\right)\left(\frac{a^5b}{5c^3d}\right)$

19. $\left(\frac{4x^4}{32x}\right)^3\left(\frac{4}{x^3}\right)^3$

20. $\left(\frac{8x^2}{x^3}\right)^4\left(\frac{x}{4}\right)^4$

Division Properties of Exponents Assignment

Answer:

Simplify the following expressions.

$$1. \frac{k^{10}}{k^6} = k^4$$

$$3. \frac{g^4}{g^{-2}} = g^{4-(-2)} = g^6$$

$$5. \frac{5^2}{5^5} = \frac{1}{5^3} = \frac{1}{125}$$

$$7. \frac{6^3 v^4 w^5}{6v^7 w^3} = \frac{6^2 w^2}{v^3} = \frac{36w^2}{v^3}$$

$$9. \frac{3^{-3}}{3^{-7}} = \frac{1}{3^{-7-(-3)}} = \frac{1}{3^{-4}} = \frac{1}{\frac{1}{3^4}} = 3^4 = 81$$

$$2. \frac{ab^2}{a^3b} = \frac{b}{a^2}$$

$$4. \frac{2^5}{2^3} = 2^2 = 4$$

$$6. \frac{5^2 x^4}{5^4 x^2} = \frac{x^2}{5^2} = \frac{x^2}{25}$$

$$8. \frac{3^3 a^4 b^5}{3^5 a^2 b^3} = \frac{a^2 b^2}{3^2} = \frac{a^2 b^2}{9}$$

$$10. \frac{r^{-7}}{r^{-3}} = r^{-7-(-3)} = r^{-4} = \frac{1}{r^4}$$

Evaluate the following using properties of powers.

$$11. \left(\frac{4a^3}{2a^2}\right)^3 = (2a)^3 = 8a^3$$

$$13. \left(\frac{x^5}{2x^3}\right)^2 = \left(\frac{x^2}{2}\right)^2 = \frac{x^4}{4}$$

$$15. \left(\frac{12x^3 y^4 z}{18x^2 y^6}\right)^2 = \left(\frac{2xz}{3y^2}\right)^2 = \frac{4x^2 z^2}{9y^4}$$

$$17. \left(\frac{12x^3 y^2}{ab}\right) \left(\frac{a^6 b^5}{4x^4 y^4}\right) = \frac{3a^5 b^4}{xy^2}$$

$$19. \left(\frac{4x^4}{32x}\right)^3 \left(\frac{4}{x^3}\right)^3 = \left(\frac{x^3}{8}\right)^3 \left(\frac{4}{x^3}\right)^3 = \left(\frac{x^3}{2^3}\right)^3 \left(\frac{2^2}{x^3}\right)^3 \\ = \left(\frac{x^9}{2^9}\right) \left(\frac{2^6}{x^9}\right) = \frac{1}{2^3} = \frac{1}{8}$$

$$12. \left(\frac{3xy^2}{9x^4}\right)^2 = \left(\frac{y^2}{3x^3}\right)^2 = \frac{y^4}{9x^6}$$

$$14. \left(\frac{-2x^2}{x^4}\right)^3 = \left(\frac{-2}{x^2}\right)^3 = -\frac{8}{x^6}$$

$$16. \left(\frac{10y^2}{y}\right) \left(\frac{4xy^4}{xy^3}\right) = 40y^2$$

$$18. \left(\frac{20cd}{ab^3}\right) \left(\frac{a^5 b}{5c^3 d}\right) = \frac{4a^4}{b^2 c^2}$$

$$20. \left(\frac{8x^2}{x^3}\right)^4 \left(\frac{x}{4}\right)^4 = \left(\frac{2^3}{x}\right)^4 \left(\frac{x}{2^2}\right)^4 = \left(\frac{2^{12}}{x^4}\right) \left(\frac{x^4}{2^8}\right) \\ = 2^4 = 16$$