

Radicals and Exponents

Laws of exponents:

If a and b are positive numbers, and x and y are any real numbers, then

1. $a^{x+y} = a^x a^y$

2. $a^{x-y} = \frac{a^x}{a^y}$

3. $(a^x)^y = a^{xy}$

4. $(ab)^x = a^x b^x$

Simplify the following expressions:

1. $\frac{8x^{n+2}}{6x^3} =$

2. $(x^{r+2})(x^{r+3}) =$

3. $\sqrt[2]{b^7} =$

4. $\frac{x^7}{x^5} =$

5. $\sqrt{49b^6} + \sqrt{\frac{b^4}{4a^2}} =$

6. $x^5 y^5 =$

7. $(x^2)^3 =$

8. $(x^2)(x^3) =$

Simplify the following expressions:

9. $\sqrt[3]{a^2b^6} =$

10. $\frac{3r^{k-1}}{r^{k+4}} =$

11. $\left(\frac{-2x^{\frac{1}{3}}}{y^{\frac{1}{2}}}\right)^3 =$

12. $16^{\frac{1}{2}} \cdot 27^{-\frac{2}{3}} =$

13. $125^{-\frac{1}{3}} \cdot 8^{\frac{2}{3}} =$

14. $4^{-\frac{3}{2}} \cdot 16^{-\frac{1}{4}} =$

15. $64^{\frac{1}{3}} =$

16. $\frac{5r^{k-1}}{r^{k+3}} =$