

Radicals and Exponents Solution

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:

$$a. \frac{(8x^{n+2})}{6x^3}$$

$$b. \ x^{r+2}x^{r+3}$$

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

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

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

$$f. \ x^5y^5$$

$$g. \ (x^2)^3$$

$$h. \ x^2x^3$$

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

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

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

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

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

$$n. \ 4^{-\left(\frac{3}{2}\right)} \cdot 16^{\frac{1}{4}}$$

$$o. \ 64^{\frac{1}{3}}$$

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