

Algebra 1 Writing in Radical Form and Exponential form

Write an expression in radical form

$$b^{\frac{x}{y}} \leftarrow \text{exponent}$$

$$\leftarrow \text{root} = \sqrt[y]{b^x}$$

$$\uparrow \text{base}$$

$$\sqrt{9} = 3$$

a) $y^{\frac{5}{2}} r$

$$\sqrt[2]{y^5}$$

$$\sqrt{y^5}$$

b) $(3a)^{\frac{4}{5}} r$

$$\sqrt[5]{(3a)^4}$$

c) $(5a)^{\frac{5}{3}}$

$$\sqrt[3]{(5a)^5}$$

d) $p^{\frac{1}{2}} r$

$$\sqrt{p}$$

$$\sqrt{9} = 9^{\frac{1}{2}} = 3$$

e) $(3y^2)^{\frac{1}{3}}$

$$\sqrt[3]{3y^2} / \sqrt[3]{(3y^2)}$$

$$\sqrt[y]{b^e}$$

f) $(12x^2y)^{\frac{1}{2}r}$

$$\sqrt{12x^2y}$$

$$= b^{\frac{1}{y}}$$

To Write an expression in exponential form

root

$$\sqrt[3]{3m}$$

$$(3m)^{\frac{1}{3}}$$

exp. root

b) $\sqrt[3]{10x^2y^3}$

$$(10x^2y^3)^{\frac{1}{3}}$$

c) $\sqrt{10p}$

$$(10p)^{\frac{1}{2}}$$

d) $\sqrt{5x^4}$

$$(5x^4)^{\frac{1}{2}}$$

e) $\sqrt{m^5}$ ← exp.

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

Writing in exponential form and then Simplify

a) $\sqrt[3]{b^{12}} = b^4 = b^{\frac{12}{3}}$

$$\underline{b^4} \cdot \underline{b^4} \cdot \underline{b^4}$$

b) $\sqrt[3]{a^9b^6}$

$$\frac{a^9}{3} \frac{b^6}{3}$$

$$a^3 b^2$$

c) $\sqrt{m^6p^8}$

$$m^{\frac{6}{2}} p^{\frac{8}{2}}$$

$$m^3 p^4$$

d) $\sqrt{m^4p^{20}}$

$$m^{\frac{4}{2}} p^{\frac{20}{2}}$$

$$m^2 p^{10}$$

e) $\sqrt[4]{x^{24}y^4}$

$$x^6 y$$

Assignment

Write the expression in radical form

1) $y^{\frac{3}{2}} e^r$

$\sqrt{y^3}$

2) $(4a)^{\frac{5}{4}}$

3) $(5a^7)^{\frac{2}{5}}$

4) $m^{\frac{1}{3}}$

5) $(5y^4)^{\frac{1}{2}}$

6) $(3x^7y^3)^{\frac{1}{2}}$

Write the expression in exponential form

7) $\sqrt[3]{2p}^{\frac{1}{3}}$
(2.p)

8) $\sqrt[3]{9x^8y^7}$

9) $\sqrt{7x}$

10) $\sqrt{8x^9}$

11) $\sqrt{m^7}$

Write in exponential form and then simplify

12) $\sqrt[3]{b^{18}}$

$b^{\frac{18}{3}} = b^6$

13) $\sqrt[4]{a^4b^{12}}$

14) $\sqrt{m^4p^8}$

15) $\sqrt{x^6y^{10}}$