

Name: _____

Date: _____

Assignment - Answers

Evaluate the following expressions. Final answers should have all positive **integer** exponents, and radicals should be in lowest terms. Show all your work.

$$\text{a. } \left(\frac{9}{12a}\right)^3 = \frac{27}{64a^3} \quad \text{b. } (3xy)^4 = 81x^4y^4 \quad \text{c. } \begin{aligned} (m^2n^5)^3 \\ = m^6n^{15} \end{aligned} \quad \text{d. } \begin{aligned} (-2ab)(-4m^3n^2) \\ = 8abm^3n^2 \end{aligned}$$

$$\text{e. } \left(\frac{c^5}{d^3}\right)^{-4} = \frac{d^{12}}{c^{20}} \quad \text{f. } (c^3d^4)^{-5} = \frac{1}{c^{15}d^{20}} \quad \text{g. } (2xy^{-4})^5 = \frac{32x^5}{y^{20}} \quad \text{h. } \begin{aligned} (-3a^{-4}b^{-5})^{-3} \\ = -\frac{a^{12}b^{15}}{27} \end{aligned}$$

$$\text{i. } \frac{x^9y^5}{x^6y^{-2}} = x^3y^7 \quad \text{j. } \frac{(a^{-2}b^{-1})^{-3}}{a^3b} = a^3b^2 \quad \text{k. } \frac{a^4}{a^5} \times a^{-6} = \frac{1}{a^7} \quad \text{l. } \frac{6x^4y^{-3}}{14xy^2} = \frac{3x^3}{7y^5}$$

$$\text{m. } \begin{aligned} (25a^4b^2)^{3/2} \\ = 125a^6b^3 \end{aligned} \quad \text{n. } \begin{aligned} (x^3y^{-3/2})(x^{-1}y^{1/2}) \\ = \frac{x^2}{y} \end{aligned} \quad \text{o. } \begin{aligned} \frac{12x^{-5}y^{5/3}}{3x^{1/3}y^{-1/3}} \\ = \frac{4y^3\sqrt{x^2y}}{x^6} \end{aligned} \quad \text{p. } \begin{aligned} \left(\frac{50x^2y^4}{2x^4y^7}\right)^{1/2} \\ = \frac{5\sqrt{y}}{xy^2} \end{aligned}$$

$$\text{q. } \begin{aligned} \left(\frac{-5m^4n^{-5}}{15n^2p^6}\right)^{-4} \\ = \frac{81n^{81}p^{24}}{m^{16}} \end{aligned} \quad \text{r. } \begin{aligned} \left(\frac{-4m^3n^{-6}}{12n^3p^4}\right)^{-3} \\ = -\frac{27n^{27}p^{12}}{m^9} \end{aligned} \quad \text{s. } \begin{aligned} -\left(\frac{12a^4b^{-6}}{27a^{-2}c^6}\right)^{-1/2} \\ = -\frac{3b^3c^3}{2a^3} \end{aligned} \quad \text{t. } \begin{aligned} \left(\frac{-12a^6b^{-6}}{20a^{-3}c^4}\right)^{-4/3} \\ = -\frac{5b^8c^{5^3}\sqrt[3]{45c}}{9a^{12}} \end{aligned}$$