

Unit 3 – Final Review

1. Write in radical form

a) $42^{\frac{5}{4}}$

b) $\left(\frac{3}{4}\right)^{\frac{6}{5}}$

c) $-64^{\frac{1}{3}}$

d) $(-7)^{\frac{3}{8}}$

2. Write in radical form and evaluate

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

b) $27^{\frac{4}{3}}$

c) $81^{\frac{3}{4}}$

d) $64^{\frac{2}{3}}$

3. Write each radical as an exponent

a) $\sqrt{10^3}$

b) $(\sqrt[4]{6})^3$

c) $(\sqrt[5]{62})^3$

d) $\sqrt{\left(\frac{3}{4}\right)^9}$

e) $\left(\sqrt[4]{\frac{1}{3}}\right)^5$

f) $\sqrt[5]{-\frac{2}{9}}$

4. Rewrite each power with positive exponents

a) $\left(\frac{14}{5}\right)^{-\frac{4}{3}}$

b) $\left(\frac{1}{3}\right)^{-5}$

c) -3^{-6}

d) 14^{-3}

e) $15^{-\frac{1}{4}}$

f) $8^{-\frac{5}{2}}$

5. Rewrite each power with positive exponents and evaluate.

a) 3^{-4}

b) $-49^{-\frac{3}{2}}$

c) $\left(\frac{4}{3}\right)^{-3}$

d) $16^{-0.25}$

6. Simplify and write each expression as a single power. Write each power with positive exponents.

a) $3a^2 \cdot a^{-5} \cdot a^4$

b) $(2x^2 \cdot 3x^{-5})^3$

c) $\frac{3a^2}{12a^{-3}}$

d) $\frac{10x^{\frac{9}{4}}y^2}{8x^3y^{-1}}$

e) $(-5h^2k^{-3})^{-2}$

f) $(5x^0y^4)^{-4} \cdot y^{\frac{1}{2}}$

g) $2x^4y^2 \cdot (3xy^4)^2$

h) $(y^{-4}z^4)^3 \cdot (zy^2)^{-2}$

$$i) (9m^{-4}n^6)^{-\frac{1}{3}}(m^{-4}n)$$

$$j) (m^4n^2 \cdot -4m^{-1}n)^3$$

$$k) \frac{(m^2)^{-1}}{3n^2 \cdot m^4n}$$

$$l) \left(\frac{32e^4f}{e^{-1}f^0}\right)^{\frac{1}{5}}$$

$$m) \left(\frac{6x^{-3}y^2}{4x^2 \cdot x^4y^{-4}}\right)^2$$

$$n) \frac{2yx^{-2} \cdot 3x}{(x^2y^{-1})^3}$$

$$o) \frac{(4ab^0)^2}{3b^{-1} \cdot 6b^{-4}}$$

$$p) \frac{8x^3y^3z^{-2} \cdot x^{-3}}{(-2x^4y^{-2})^2}$$