

Classwork: Rational Exponent

Date _____ Block _____

Write each expression in radical form.

1) $4^{\frac{5}{3}}$

2) $2^{\frac{1}{5}}$

3) $5^{\frac{4}{3}}$

Write each expression in exponential form.

4) $\frac{1}{(\sqrt[3]{7b})^2}$

5) $(\sqrt[3]{n})^2$

6) $(\sqrt[4]{5v})^7$

Simplify.

7) $\left(x^{\frac{1}{2}} \cdot x\right)^2$

8) $(b^2)^{\frac{3}{2}} \cdot b^{\frac{3}{2}}$

9) $\left(\frac{3}{a^2}\right)^{\frac{5}{3}} \cdot a^{\frac{3}{4}}$

Simplify. Your answer should contain only positive exponents with no fractional exponents in the denominator.

10) $\left(\frac{x^{-2}y^{\frac{1}{2}} \cdot x^{\frac{7}{4}}y^{\frac{1}{2}} \cdot x^2}{x}\right)^{-2}$

$$11) \frac{\left(u^{-\frac{1}{4}} v^{-\frac{1}{2}}\right)^{\frac{7}{4}} \cdot u^0 v^{\frac{2}{3}}}{u^{\frac{7}{4}}}$$

Answers to Classwork: Rational Exponent

$$1) (\sqrt[3]{4})^5$$

$$2) \sqrt[5]{2}$$

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

$$4) (7b)^{-\frac{2}{3}}$$

$$5) n^{\frac{2}{3}}$$

$$6) (5v)^{\frac{7}{4}}$$

$$7) x^3$$

$$8) b^{\frac{9}{2}}$$

$$9) a^{\frac{13}{4}}$$

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

$$11) \frac{u^{\frac{13}{16}} v^{\frac{19}{24}}}{u^3 v}$$