

11.1-11.2 Practice:

Translate the expression with rational exponents into a radical expression and simplify, if possible.

1.  $x^{\frac{3}{9}}$
2.  $\left(\frac{625}{16}\right)^{\frac{3}{4}}$
3.  $(16)^{0.25}$

Translate the radical expression into an expression with rational exponents and simplify, if possible.

4.  $\sqrt{y^6}$
5.  $(\sqrt[9]{27z})^3$
6.  $\sqrt[3]{64^4}$

For 11–16, simplify the expression. Assume that all variables are positive. All exponents should be positive in simplified form. Rationalize any irrational denominators.

7.  $\left(\frac{64^{\frac{5}{3}}a^{\frac{4}{3}}}{64^{\frac{9}{4}}}\right)^{\frac{3}{4}}$

8.  $\frac{\sqrt{x^3y^5}}{x^{\frac{1}{2}}y^{\frac{3}{2}}}$

9.  $\sqrt{6} \cdot \sqrt[3]{36}$

10.  $\frac{\sqrt[4]{30x^3y}}{\sqrt[4]{6xy^3}}$

11.  $\frac{125^{\frac{2}{9}} \cdot 125^{\frac{1}{9}}}{5^{\frac{1}{4}}}$

12.  $\frac{\sqrt[6]{8} \cdot \sqrt[6]{16}}{\sqrt[6]{2}}$

13.  $\sqrt[3]{250x^3y^8z^4}$

14.  $\sqrt{\frac{9x^4y}{32z^3}}$