

Name _____

1. Simplify these expressions. Leave only positive exponents.

a. $(3xy^{-2})^3$

b. $\left(\frac{a^{-2}}{b^2}\right)^{-3} \left(\frac{a^{-3}}{b^5}\right)^2$

2. Simplify these expressions with fractional exponents. Leave only positive exponents.

a. $16^{-3/4}$

b. $\frac{a^{-2/5}a^2}{a^{-3/10}}$

3. Write each expression in simplest radical form. Rationalize any denominators.

a. $\sqrt[3]{ab^4} \sqrt[3]{a^2b}$

b. $\sqrt[5]{64x^5y^3z^{11}}$

b. $\sqrt[4]{\frac{2}{5}}$

d. $\sqrt[4]{\sqrt[3]{25}}$

4. Rationalize the numerator and simplify this expressions.

a. $\frac{\sqrt{3x+4} - 3\sqrt{x}}{8}$

5. Simplify these radicals and perform the operations.

a. $3\sqrt{28} + 6\sqrt{63} - 4\sqrt{175}$

b. $\sqrt[5]{32a^6b^4} + \sqrt[5]{243ab^9}$

6. Rationalize the denominator and simplify these expressions.

a. $\frac{\sqrt{15} - 3\sqrt{5}}{2\sqrt{15} - \sqrt{5}}$

b. $\frac{5 - \sqrt{10}}{\sqrt{10}}$