Name:_____ Period:_____

P2 Radicals and Rational Exponents Practice

Simplify each expression. Write your final answer with rational exponents.

1) $-5(-2)^2 \cdot \left(-\frac{2^3}{4^2}\right)$

2) $\sqrt[5]{-96x^{-10}y^{13}}$

3) $\frac{\left(216a^3b^9\right)^{2/3}}{(81a)^{3/4}b^5}$

4) $\sqrt[2]{\sqrt[5]{1024x^{17}}}$

5) $\left(\frac{9^{3/2}a^{-7/2}b^{1/3}c^{11/6}}{3^{5/3}a^{2/3}b^{-9/2}c^2}\right)^{12}$

6) $\sqrt{4\sqrt[3]{64x^{12}\sqrt[5]{x^{18}y^{15}}}}$

Evaluate each expression with a calculator.

7) $\sqrt[4]{243x^{10}y^{12}}$

8) $\left(\frac{-8}{125}\right)^{-2/3}$

9) $\left(\frac{16x^{11}y^2}{81x^3y^{-2}}\right)^{5/4}$

Rationalize each expression.

10) $\dfrac{14}{\sqrt{2}-\sqrt{7}}$

11) $\dfrac{30}{\sqrt{5}+\sqrt{3}}$

12) $\dfrac{12}{\sqrt[4]{12a^3b}}$

13) $\dfrac{5}{\sqrt[3]{4ab^5}}$

Simplify each expression.

14) $\sqrt{2}+\sqrt{3}+\sqrt{4}+\sqrt{8}+\sqrt{9}+\sqrt{12}+\sqrt{16}+\sqrt{20}$

15) $2\sqrt[3]{24a^4}+6a\sqrt[3]{81a}-3a\sqrt[3]{3a}$

16) $2\sqrt{(x+y)^2}+\sqrt{(x+y)^4}+(x+y)$