

Day 4 Homework - Properties of Rational Exponents

Period _____

Write each expression in radical form.

1) $(3a)^{\frac{6}{5}}$

2) $a^{\frac{5}{6}}$

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

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

Write each expression in exponential form.

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

6) $\sqrt{7m}$

7) $\sqrt[3]{4x^2}$

8) $(\sqrt[6]{r})^7$

Simplify. Your answer should contain only positive exponents.

9) $\frac{(2^3)^{-3}}{2^3 \cdot 2^4}$

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

11) $\frac{(vu^0)^{-1}}{u^4 v^4 \cdot 2v^{-4}}$

12) $3n^{\frac{1}{2}} \cdot 2n^{\frac{1}{2}} \cdot 4n^0$

13) $4x \cdot 4x^{\frac{3}{2}}$

14) $n^4 n^{\frac{1}{4}}$

15) $\left(\frac{5}{v^3}\right)^2$

16) $(n^0)^{\frac{1}{2}}$

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

18) $\frac{3m^2}{3m^{\frac{5}{3}}}$

$$19) \frac{4x^{\frac{1}{2}}}{4x^{\frac{5}{4}}}$$

$$20) \frac{3p^2}{2p^{\frac{1}{2}}}$$

$$21) \left((m^3)^{\frac{1}{3}} \cdot m^{\frac{3}{4}} \right)^{\frac{2}{3}}$$

$$22) \frac{x^{\frac{1}{4}} \cdot x \cdot x^{\frac{1}{2}}}{4x}$$

23) BONUS

$$\frac{xx^{\frac{1}{2}}}{\left(\frac{2}{x^3}\right)^2}$$

24) BONUS

$$\left(\frac{x}{x \cdot (x^2)^{\frac{1}{3}}} \right)^2$$

Factor each completely.

$$25) k^2 - 17k + 72$$

$$26) x^2 + 15x + 50$$

Evaluate each expression.

$$27) \frac{(4)(2)}{5-3}$$

$$28) \left(6 + \frac{15}{5}\right)(5)$$

Simplify the expression using the tangent and pythagorean identities.

$$29) \frac{\sin x}{\tan x}$$

$$30) \frac{\sin^2 \theta}{\tan^2 \theta} + \sin^2 \theta$$