7.2B Rational Exponents HW
Intermediate Algebra B

Name Key
Period _____ Date _____

Rewrite each expression with a rational exponent.

1) $\sqrt[3]{x}$ $x^{\frac{1}{3}}$

2) $\sqrt[3]{y^2}$ $y^{\frac{2}{3}}$

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

Rewrite each expression in radical form.

4) $a^{\frac{2}{3}}$ $\sqrt[3]{a^2}$

5) $b^{\frac{5}{2}}$ $\sqrt{b^5}$

6) $2^{\frac{1}{2}}$ $\sqrt{2}$

Evaluate each expression. Change forms first!

7) $\sqrt[3]{64}$ $(64)^{\frac{1}{3}} = 4$

8) $(\sqrt[5]{243})^3$ $243^{\frac{3}{5}}$ 27

9) $\sqrt{4^5}$ $4^{\frac{5}{2}} = 32$

10) $\sqrt[4]{81^3}$ $81^{\frac{3}{4}}$ $3^3 = 27$

Simplify each expression using properties of exponents. Write your answer in **radical form when possible**.

11) $x^{\frac{1}{4}} \cdot x^{\frac{1}{2}}$ $x^{\frac{1}{4}+\frac{1}{2}}$ $x^{\frac{3}{4}}$ $\sqrt[4]{x^3}$

12) $y^{\frac{2}{5}} \cdot y^{\frac{1}{10}}$ $y^{\frac{2}{5}+\frac{1}{10}}$ $y^{\frac{5}{10}} = y^{\frac{1}{2}}$ $\sqrt{y}$

13) $(36x^4y^6)^{\frac{3}{2}}$ $36^{\frac{3}{2}} x^{4\cdot\frac{3}{2}} y^{6\cdot\frac{3}{2}}$ $216 x^6 y^9$

14) $\left(x^{\frac{3}{4}} \cdot x^{\frac{2}{3}}\right)^2$ $\left(x^{\frac{17}{12}}\right)^2$ $x^{\frac{17}{6}}$ $\sqrt[6]{x^{17}}$