Mastery Algebra 1 Sample Mastery Quiz 7-5 Name: KEY

Per: ____ ☐

7-5 Rational Exponents and Radicals

Find the value of each expression. (1 point each)

1. $\sqrt[4]{81} = 3$

2. $25^{\frac{1}{2}} = 5$

3. $16^{\frac{3}{2}} = 64$

Write each expression in radical form. (1 point each)

4. $b^{\frac{1}{3}} = \sqrt[3]{b}$

5. $a^{\frac{3}{5}} = \left(\sqrt[5]{a}\right)^3$ (or $\sqrt[5]{a^3}$)

6. $36x^{\frac{1}{2}} = 36\sqrt{x}$

7. $(27c)^{\frac{2}{3}} = 27^{\frac{2}{3}} c^{\frac{2}{3}} = 3^2\left(\sqrt[3]{c}\right)^2 = 9\left(\sqrt[3]{c}\right)^2$ or $9\sqrt[3]{c^2}$

Write each expression in exponential form. (1point each)

8. $\sqrt[3]{x^4} = x^{\frac{4}{3}}$

9. $\sqrt{(2y)^5} = (2y)^{\frac{5}{2}}$

10. $\sqrt[3]{8z^4} = 8^{\frac{1}{3}} z^{\frac{4}{3}} = \sqrt[3]{8}\,\sqrt[3]{z^4} = 2\sqrt[3]{z^4}$ or $2\left(\sqrt[3]{z}\right)^4$