

Name Kley

Date _____

Hour _____

7.6 Extra Practice

1. $32^{\frac{1}{5}} = (2^5)^{\frac{1}{5}} = \boxed{2}$

2. $32^{\frac{2}{5}} = (2^5)^{\frac{2}{5}} = 2^2 = \boxed{4}$

3. $32^{-\frac{1}{5}} = (2^5)^{-\frac{1}{5}} = 2^{-1} = \boxed{\frac{1}{2}}$

4. $32^{-\frac{2}{5}} = (2^5)^{-\frac{2}{5}} = 2^{-2} = \boxed{\frac{1}{4}}$

5. $-32^{-\frac{2}{5}} = -(2^5)^{-\frac{2}{5}} = -2^{-2} = \boxed{-\frac{1}{4}}$

6. $8^{\frac{1}{3}} \cdot 8^{\frac{4}{3}} = 8^{\frac{5}{3}} = (2^3)^{\frac{5}{3}} = 2^5 = \boxed{32}$

7. $8^{-\frac{5}{3}} = (2^3)^{-\frac{5}{3}} = 2^{-5} = \boxed{\frac{1}{32}}$

8. $\left(\frac{125}{216}\right)^{\frac{2}{3}} = \frac{(5^3)^{\frac{2}{3}}}{(6^3)^{\frac{2}{3}}} = \frac{5^2}{6^2} = \boxed{\frac{25}{36}}$

9. $\sqrt[10]{16^5} = 16^{\frac{5}{10}} = (4^2)^{\frac{1}{2}} = \boxed{4}$

10. $\frac{q^{\frac{3}{2}}}{q^{\frac{5}{2}}} = q^{\frac{1}{5}} = \boxed{q^{\frac{1}{5}}}$

11. $\frac{\sqrt[3]{64}}{\sqrt{4}} = \frac{4}{2} = \boxed{2}$

12. $\sqrt[4]{6} \cdot 3\sqrt[4]{6} = 3^4 \sqrt[4]{36} = 3^4 \sqrt[4]{6^2} = 3 \cdot 6^{\frac{1}{2}} = \boxed{3\sqrt{6}}$

13. $\frac{64^{\frac{2}{3}}}{125^{\frac{1}{3}}} = \frac{(4^3)^{\frac{2}{3}}}{(5^3)^{\frac{1}{3}}} = \frac{4^2}{5} = \boxed{\frac{16}{5}}$

14. $27^{-\frac{2}{3}} = (3^3)^{-\frac{2}{3}} = 3^{-2} = \boxed{\frac{1}{9}}$

15. $\frac{y \cdot y^2}{y^{\frac{1}{2}}} = \frac{y^{\frac{3}{2}}}{y^{\frac{1}{2}}} = \boxed{y^{\frac{5}{2}}}$

16. $\frac{\sqrt{32}}{\sqrt{2}} = \sqrt{16} = \boxed{4}$