

SHOW ALL WORK!

1. Write $x^{1/3}$ in radical form. Do not simplify

$$\sqrt[3]{x}$$

2. Write $(3x^2y^4)^{2/9}$ in radical form. Do not simplify

$$\sqrt[9]{(3x^2y^4)^2}$$

3. Write $\sqrt[5]{x^4}$ in rational exponent form. Do not simplify

$$x^{4/5}$$

4. Write $\sqrt[8]{x^5}$ in rational exponent form. Do not simplify

$$x^{5/8}$$

Evaluate.

5. -3^4
 $-1 \cdot 3^4 = -81$

6. $(-3)^4 = -3 \cdot -3 \cdot -3 \cdot -3$
 $= 81$

7. $3^{-1} = \frac{1}{3}$

8. $4^{1/2} = \sqrt{4} = 2$

9. $49^{1/2} = \sqrt{49} = 7$

10. $27^0 = 1$

Simplify and express using positive exponents only.

11. $\left(\frac{1}{3w^{-4}}\right)^2 = \frac{1}{9w^{-8}} = \frac{w^8}{9}$

12. $(3a^2)(4a^7) = 12a^{2+7} = 12a^9$

Simplify and express using positive exponents only.

$$13. \frac{2a^2b^3c}{12ab^7c} = \frac{a}{6b^4}$$

$$14. \frac{10m^{-1}n}{5m^2n^{-3}} = \frac{2n \cdot n^3}{m^2 \cdot m} = \frac{2n^4}{m^3}$$

$$15. a^{\frac{2}{7}} \cdot a^{\frac{5}{7}} = a^{\frac{7}{7}} = a$$

$$16. \frac{w^{\frac{3}{5}}}{w^2} = w^{\frac{3}{5} - \frac{10}{5}} = w^{-\frac{7}{5}} = w^{-1} = \frac{1}{w}$$

Simplify and express your answer in *simplest radical form*.

$$17. (2x^{\frac{7}{10}}) \cdot (3x^{\frac{2}{5}}) = 6x^{\frac{7}{10} + \frac{2}{5} \cdot \frac{2}{2}} = 6x^{\frac{7}{10} + \frac{4}{10}} = 6x^{\frac{11}{10}} = 6 \sqrt[10]{x^{11}} = 6x \sqrt[10]{x}$$