

Bellwork Hon Alg 2 Monday, March 13, 2017

Simplify each without a calculator.

1. $4^{-\frac{5}{2}}$

2. $3^{\frac{1}{2}} \cdot 27^{\frac{1}{2}}$

3. $9^{1.5}$

4. $(m^{\frac{5}{2}})^{-6}$

5. $(64a^{-6})^{-\frac{1}{2}}$

6. $(\frac{g^{-4}}{g^2})^{-\frac{1}{3}}$

7. $(a^{-\frac{8}{3}}b^{12})^{-\frac{3}{4}}$

8. $\frac{x^{\frac{2}{3}}y^{-\frac{1}{4}}}{x^{\frac{1}{2}}y^{-\frac{1}{2}}}$

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ANSWERS

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

2. $3^{\frac{1}{2}} \cdot 27^{\frac{1}{2}}$
 $= \sqrt{3} \cdot \sqrt{27} = \sqrt{81}$
 $= \boxed{9}$

3. $9^{1.5} = 9^{\frac{3}{2}} = (\sqrt{9})^3$
 $= \boxed{27}$

4. $(m^{\frac{5}{2}})^{-6} = m^{-15}$
 $= \boxed{\frac{1}{m^{15}}}$

5. $(64a^{-6})^{-\frac{1}{2}}$
 $= 64^{-\frac{1}{2}} a^3$
 $= \frac{a^3}{\sqrt{64}} = \boxed{\frac{a^3}{8}}$

6. $(\frac{g^{-4}}{g^2})^{-\frac{1}{3}} = (\frac{1}{g^6})^{-\frac{1}{3}}$
 $= (g^6)^{\frac{1}{3}} = \boxed{g^2}$

7. $(a^{-\frac{8}{3}}b^{12})^{-\frac{3}{4}}$

$(a^2 b^{-9})$
 $= \boxed{\frac{a^2}{b^9}}$

8. $\frac{x^{\frac{2}{3}}y^{-\frac{1}{4}}}{x^{\frac{1}{2}}y^{-\frac{1}{2}}} = x^{\frac{2}{3} - \frac{1}{2}} y^{-\frac{1}{4} - (-\frac{1}{2})}$
 $= x^{\frac{4}{6} - \frac{3}{6}} y^{-\frac{1}{4} + \frac{2}{4}}$
 $= x^{\frac{1}{6}} y^{\frac{1}{4}} = \boxed{x^{\frac{1}{6}} y^{\frac{1}{4}}}$