General Algebra 2 Worksheet #3 Unit 11 Selected Solutions

Evaluate each of the following. Calculators are not to be used to do this worksheet.

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

7. $1000^{\frac{2}{3}} = \left(\sqrt[3]{1000}\right)^2 = 10^2 = 100$

9. $64^{\frac{-2}{3}} = \dfrac{1}{64^{\frac{2}{3}}} = \dfrac{1}{\left(\sqrt[3]{64}\right)^2} = \dfrac{1}{4^2} = \dfrac{1}{16}$

11. $\left(\dfrac{8}{27}\right)^{\frac{2}{3}} = \dfrac{8^{\frac{2}{3}}}{27^{\frac{2}{3}}} = \dfrac{\left(\sqrt[3]{8}\right)^2}{\left(\sqrt[3]{27}\right)^2} = \dfrac{2^2}{3^2} = \dfrac{4}{9}$

Express each of the following using standard radical form.

15. $3^{\frac{3}{2}} = \sqrt{3^3} = \sqrt{27} = \sqrt{9} \cdot \sqrt{3} = 3\sqrt{3}$

16. $2^{\frac{-1}{2}} = \dfrac{1}{2^{\frac{1}{2}}} = \dfrac{1}{\sqrt{2}} \cdot \dfrac{\sqrt{2}}{\sqrt{2}} = \dfrac{\sqrt{2}}{\sqrt{4}} = \dfrac{\sqrt{2}}{2}$

18. $\left(\dfrac{3}{4}\right)^{\frac{1}{2}} = \sqrt{\dfrac{3}{4}} = \dfrac{\sqrt{3}}{\sqrt{4}} = \dfrac{\sqrt{3}}{2}$

20. $\left(\dfrac{2}{5}\right)^{\frac{-1}{2}} = \left(\dfrac{5}{2}\right)^{\frac{1}{2}} = \sqrt{\dfrac{5}{2}} = \sqrt{\dfrac{10}{4}} = \dfrac{\sqrt{10}}{\sqrt{4}} = \dfrac{\sqrt{10}}{2}$