General Algebra II Worksheet #4 Unit 11 Selected Solutions

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

3. $27^{\frac{1}{3}} = \sqrt[3]{27} = 3$

5. $9^{\frac{3}{2}} = \left(\sqrt{9}\right)^3 = 3^3 = 27$

9. $27^{\frac{-2}{3}} = \dfrac{1}{27^{\frac{2}{3}}} = \dfrac{1}{\left(\sqrt[3]{27}\right)^2} = \dfrac{1}{3^2} = \dfrac{1}{9}$

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

Express each of the following using standard radical form.

14. $50^{\frac{1}{2}} = \sqrt{50} = \sqrt{25}\cdot\sqrt{2} = 5\sqrt{2}$

15. $5^{\frac{3}{2}} = \sqrt{5^3} = \sqrt{125} = \sqrt{25}\cdot\sqrt{5} = 5\sqrt{5}$

17. $12^{\frac{-1}{2}} = \dfrac{1}{12^{\frac{1}{2}}} = \dfrac{1}{\sqrt{12}}\cdot\dfrac{\sqrt{3}}{\sqrt{3}} = \dfrac{\sqrt{3}}{\sqrt{36}} = \dfrac{\sqrt{3}}{6}$

19. $\left(\dfrac{9}{10}\right)^{\frac{1}{2}} = \sqrt{\dfrac{9}{10}} = \dfrac{\sqrt{9}}{\sqrt{10}}\cdot\dfrac{\sqrt{10}}{\sqrt{10}} = \dfrac{3\sqrt{10}}{10}$