Algebra II Worksheet #3 Unit 5 selected solutions

Express each of the following as imaginary numbers in **bi** form. (Simplify any square roots.)

2. $\sqrt{-49} = 7i$

$\sqrt{49} \cdot \sqrt{-1}$

5. $\sqrt{-6} = \sqrt{6}\,i \text{ or } i\sqrt{6}$

$\sqrt{6} \cdot \sqrt{-1}$

7. $\sqrt{-20} = 2\sqrt{5}\,i \text{ or } 2i\sqrt{5}$

$\sqrt{20} \cdot \sqrt{-1}$

$\sqrt{4} \cdot \sqrt{5} \cdot \sqrt{-1}$

Express each of the following in simplest form.

15. $\sqrt{\frac{-7}{8}} = \boxed{\frac{\sqrt{14}\,i}{4} \text{ or } \frac{i\sqrt{14}}{4}}$

$\frac{\sqrt{-7}}{\sqrt{8}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{14} \cdot \sqrt{-1}}{\sqrt{16}}$

20. $\sqrt[3]{-0.96} = \boxed{\frac{-2\sqrt[3]{15}}{5}}$

$-0.96 = \frac{-24}{25}$

$\sqrt[3]{\frac{-24}{25}} = \frac{\sqrt[3]{-24}}{\sqrt[3]{25}} = \frac{\sqrt[3]{-8} \cdot \sqrt[3]{3} \cdot \sqrt[3]{5}}{\sqrt[3]{25} \cdot \sqrt[3]{5}}$