Algebra II Worksheet #4 Unit 5 Selected Solutions

Express each of the following in simplest form.

1. $\sqrt{40} = \sqrt{4}\sqrt{10} = \underline{2\sqrt{10}}$

2. $\sqrt[3]{40} = \sqrt[3]{8}\sqrt[3]{5} = \underline{2\sqrt[3]{5}}$

7. $\sqrt{\frac{-5}{8}} = \frac{\sqrt{-5}}{\sqrt{8}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{10} \cdot \sqrt{-1}}{\sqrt{16}} = \boxed{\frac{\sqrt{10}\,i}{4}}$

Note: $\sqrt{-1} = i$

8. $\sqrt[3]{\frac{-5}{8}} = \frac{\sqrt[3]{-5}}{\sqrt[3]{8}} = \frac{\sqrt[3]{-1} \cdot \sqrt[3]{5}}{2} = \boxed{\frac{-\sqrt[3]{5}}{2}}$

Note: $\sqrt[3]{-1} = -1$

11. $\sqrt{-1.75} = \boxed{\frac{\sqrt{7}\,i}{2}}$

$-1.75 = \frac{-7}{4}$

$\sqrt{\frac{-7}{4}} = \frac{\sqrt{-7}}{\sqrt{4}} = \frac{\sqrt{7} \cdot \sqrt{-1}}{2}$

12. $\sqrt[3]{-1.75} = \boxed{\frac{-\sqrt[3]{14}}{2}}$

$-1.75 = \frac{-7}{4}$

$\sqrt[3]{\frac{-7}{4}} = \frac{\sqrt[3]{-7} \cdot \sqrt[3]{2}}{\sqrt[3]{4} \cdot \sqrt[3]{2}} = \frac{\sqrt[3]{-1} \cdot \sqrt[3]{14}}{\sqrt[3]{8}}$

Perform the indicated operations. Express each of the following in simplest form.

13. $\sqrt{18} + \sqrt{50} = \underline{8\sqrt{2}}$

$\sqrt{9}\sqrt{2} + \sqrt{25}\sqrt{2}$

$3\sqrt{2} + 5\sqrt{2}$

16. $\sqrt[3]{\frac{2}{25}} + \sqrt[3]{\frac{5}{32}} = \boxed{\frac{9\sqrt[3]{10}}{20}}$

$\frac{\sqrt[3]{2}}{\sqrt[3]{25}} \cdot \frac{\sqrt[3]{5}}{\sqrt[3]{5}} + \frac{\sqrt[3]{5}}{\sqrt[3]{32}} \cdot \frac{\sqrt[3]{2}}{\sqrt[3]{2}} =$

$\frac{\sqrt[3]{10}}{5} + \frac{\sqrt[3]{10}}{4} =$

$\frac{4\sqrt[3]{10}}{20} + \frac{5\sqrt[3]{10}}{20} =$