THU
9/13

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MATH 1314 + MATH 0270
College Algebra with Foundations
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Simplifying Radicals

III. (3rd standard) No radical may appear in the denominator.

(ex) $\frac{1}{\sqrt{2}} \rightarrow \frac{1}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{1\sqrt{2}}{\sqrt{4}} = \boxed{\frac{\sqrt{2}}{2}}$ no radical in the denominator.

This process is called "Rationalizing the Denominator."

(ex) $\frac{3}{\sqrt{6}} \cdot \frac{\sqrt{6}}{\sqrt{6}} = \frac{3\sqrt{6}}{6} = \left(\text{simplify } \frac{3}{6} \text{ by dividing } \frac{3}{3}\right) = \boxed{\frac{\sqrt{6}}{2}}$

(ex) $\frac{2}{(3+\sqrt{5})} \Rightarrow \frac{2}{(3+\sqrt{5})} \cdot \frac{(3-\sqrt{5})}{(3-\sqrt{5})} = \frac{6-2\sqrt{5}}{9-3\sqrt{5}+3\sqrt{5}-5} = \frac{6-2\sqrt{5}}{9-5}$

$\frac{6-2\sqrt{5}}{4} \leftarrow \left(\text{simplify } \div\frac{2}{2}\right) \leftarrow \boxed{\frac{3-\sqrt{5}}{2}}$

Web Assign

(12) $\frac{2}{\sqrt{5}+\sqrt{6}}$; $\frac{2}{\sqrt{5}+\sqrt{6}} \cdot \frac{\sqrt{5}-\sqrt{6}}{\sqrt{5}-\sqrt{6}} = \frac{2\sqrt{5}-2\sqrt{6}}{5-6} = \frac{2\sqrt{5}-2\sqrt{6}}{-1} = \boxed{-2\sqrt{5}+2\sqrt{6}}$

(13) $-(9^{1/2})$; $-(9^{1/2}) = \boxed{-\sqrt{9}}$

(14) $(-3125)^{1/5}$; $(-3125)^{1/5} \rightarrow \boxed{\sqrt[5]{-3125}}$