Rationalize the denominator and Simplify radicals Name_____

[HSN-RN.A.2]

Reasoning: a radical number is an infinite number; since you can't divide something to infinite, we like to have a finite number as a denominator, the process of eliminating an infinite number as a denominator is called: **rationalizing**

$\sqrt{1} = 1$	$\sqrt{6} = 2.449...$
$\sqrt{2} = 1.414...$	$\sqrt{7} = 2.646...$
$\sqrt{3} = 1.732...$	$\sqrt{8} = 2.828...$
$\sqrt{4} = 2$	$\sqrt{9} = 3$
$\sqrt{5} = 2.236...$	$\sqrt{10} = 3.162...$

Issue: $\frac{5}{\sqrt{3}} = \frac{5}{1.73...}$

Solution: $\frac{5}{\sqrt{3}} = \frac{5}{\sqrt{3}} * \frac{\sqrt{3}}{\sqrt{3}} = \frac{5\sqrt{3}}{\sqrt{3}*\sqrt{3}} =$

$= \frac{5\sqrt{3}}{3}$

You do:

1. $\frac{5\sqrt{7}}{\sqrt{3}} = \frac{5\sqrt{7}}{\sqrt{3}} * \frac{\sqrt{\ }}{\sqrt{\ }} = = \frac{5\sqrt{\square}}{\square}$

2. $\frac{8\sqrt{5}}{\sqrt{2}} = \frac{8\sqrt{5}}{\sqrt{2}} * \frac{\sqrt{\ }}{\sqrt{\ }} = = \frac{8\sqrt{\square}}{\square}$

3. $\frac{4\sqrt{8}}{\sqrt{5}} = \frac{4\sqrt{8}}{\sqrt{5}} * \frac{\sqrt{\ }}{\sqrt{\ }} = = \frac{4\sqrt{\square}}{\square}$

4. $\frac{6\sqrt{6}}{\sqrt{7}} = \frac{6\sqrt{6}}{\sqrt{7}} * \frac{\sqrt{\ }}{\sqrt{\ }} = = \frac{6\sqrt{\square}}{\square}$

Simplify radicals:

Issue: (not a prime number) $\sqrt{45}$

Solution: $\sqrt{45} = \sqrt{9 * 5} =$

$\sqrt{9} * \sqrt{5} = 3 * \sqrt{5} = 3\sqrt{5}$

5. $\sqrt{18} = \sqrt{\ \ * \ \ } =$

$= \sqrt{\ } * \sqrt{\square} = \ * \sqrt{\square} =$

$\sqrt{\square}$

6. $\sqrt{75} = \sqrt{\ \ * \ \ } =$

$= \sqrt{\ } * \sqrt{\square} = \ * \sqrt{\square} =$

$\sqrt{\square}$

7. $\sqrt{20} = \sqrt{\ \ * \ \ } =$

$= \sqrt{\ } * \sqrt{\square} = \ * \sqrt{\square} =$

$\sqrt{\square}$

LIVEWORKSHEETS