Algebra 1

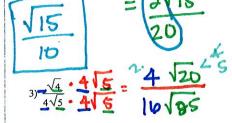
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Rationalizing Radicals Practice

Date Period_

Simplify.
$$\frac{\sqrt{3}}{2\sqrt{5}} \cdot \frac{\sqrt{3}}{\sqrt{5}} = \frac{\sqrt{15}}{\sqrt{4}\sqrt{35}}$$

$$2) \frac{3\sqrt{3}}{2\sqrt{3}}$$



4)
$$\frac{\sqrt{2}}{\sqrt{3}}$$

$$\sqrt{5}$$
 $\sqrt{5}$ $\sqrt{2}$ $\sqrt{5}$ $\sqrt{2}$ $\sqrt{2}$ $\sqrt{2}$ $\sqrt{2}$ $\sqrt{4}$

6)
$$\frac{3\sqrt{3}}{\sqrt{5}}$$

$$\frac{3\sqrt{2}}{10} = \frac{15\sqrt{2}}{50}$$

8)
$$\frac{5}{5\sqrt{3}}$$

Rationalizing the Denominator

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A. What It Means to Rationalize the Denominator

In order that all of us doing math can compare answers, we agree upon a common conversation, or set of rules, concerning the form of the answers.

For instance, we could easily agree that we would not leave an answer in the form of 3 + 4, but would write 7 instead.

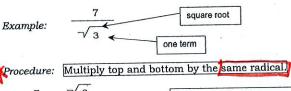
When the topic switches to that of radicals, those doing math have agreed that a RADICAL IN SIMPLE FORM will not (among other things) have a radical in the denominator of a fraction. We will all change the form so there is no radical in the denominator.

Now a radical in the denominator will not be something as simple as $\sqrt{4}$. Instead, it will have a radicand which will not come out from under the radical sign like $\sqrt{3}$.

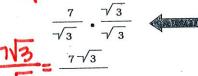
Since $\sqrt{3}$ is an irrational number, and we need to make it NOT irrational, the process of changing its form so it is no longer irrational is called RATIONALIZING THE DENOMINATOR.

B. There are 3 Cases of Rationalizing the Denominator

1. Case I: There is ONE TERM in the denominator and it is a SQUARE ROOT.







Look at what is happening herel

(3) *

Since squaring is the opposite of taking the square root, they cancel each other, leaving the 3.

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