Author:_____ **Cross Multiply and Numbers Between**

Group Members:

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1. Determine algebraically which fraction is larger.

   (a) $\frac{3}{5}$ and $\frac{7}{10}$

   (b) $\frac{5}{6}$ and $\frac{3}{4}$

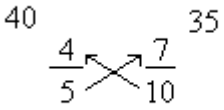
   (c) $\frac{8}{9}$ and $\frac{11}{13}$

There is a slick little algorithm to compare two fractions. Let's compare $\frac{4}{5}$ and $\frac{7}{10}$. Here's how it works:

(i) Multiply the denominator of the second fraction and the numerator of the first

(ii) Multiply the denominator of the first fraction and the numerator of the second

(iii) If the number from (i) is bigger, then $\frac{4}{5}$ is bigger than $\frac{7}{10}$, but if the number from (ii) is bigger, then $\frac{7}{10}$ is bigger than $\frac{4}{5}$.



So by the cross multiply algorithm, $\frac{4}{5} > \frac{7}{10}$.

2. Use the cross multiply algorithm to determine which fraction is larger.

(a) $\frac{3}{5}$ and $\frac{7}{10}$

(b) $\frac{5}{6}$ and $\frac{3}{4}$

(c) $\frac{8}{9}$ and $\frac{11}{13}$

3. Did the numbers from the cross multiply algorithm show up when you compared the fractions algebraically? If so, where?

4. For each of the problems where the numbers from the cross multiply algorithm did not show up in the algebraic method, redo the algebraic problem so they do appear?

5. Explain why the cross multiply algorithm works.

6. Find a number between $\frac{2}{5}$ and $\frac{3}{5}$.

7. Find two numbers between $\frac{4}{9}$ and $\frac{5}{9}$.

8. Find four numbers between $\frac{1}{3}$ and $\frac{2}{3}$.

9. In the previous problems, were you able to get your answer using the Fundamental Law only once? If not, redo the problems using Fundamental Law only once in each problem.