Name _____ Class _____ Date _____

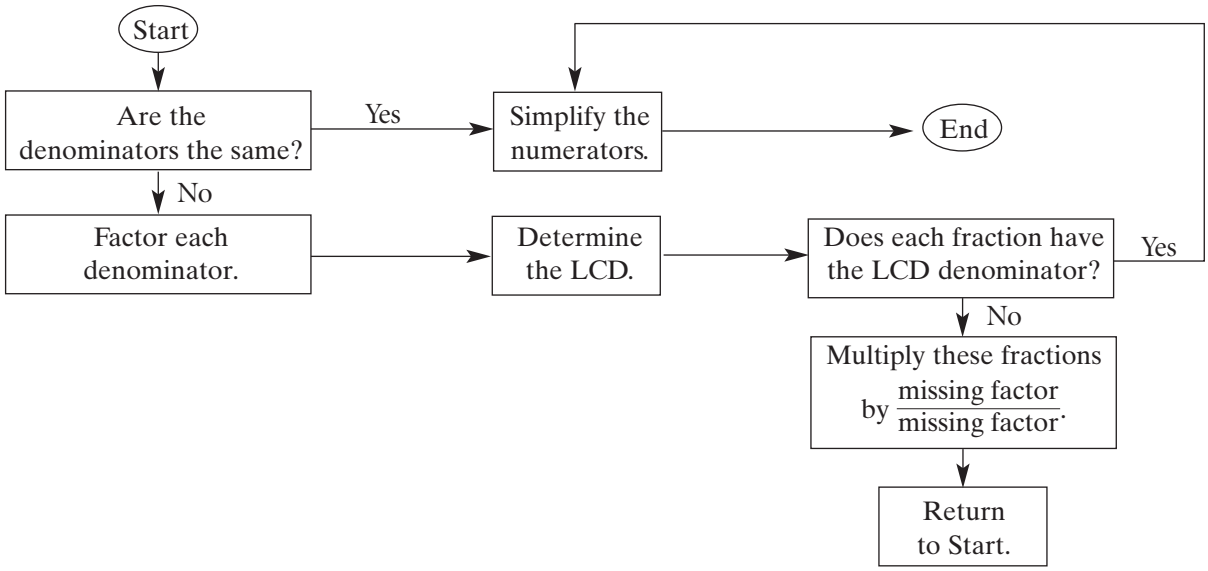
Reteaching 11-4

Adding and Subtracting Rational Expressions

OBJECTIVE: Adding and subtracting rational expressions

MATERIALS: None

Use the flowchart to add and subtract rational expressions.



Example

Simplify $\frac{2x}{x^2 - 1} + \frac{3}{x - 1}$ by following the flowchart.

$x^2 - 1 = (x - 1)(x + 1)$ ← **Factor each denominator. If a denominator is already simplified, rewrite it in a set of parentheses.**

$x - 1 = (x - 1)$

$(x - 1)(x + 1)$ ← **Determine the LCD.**

$\frac{3}{x - 1} \cdot \frac{(x + 1)}{(x + 1)} = \frac{3x + 3}{x^2 - 1}$ ← **The first fraction already has the LCD for a denominator, but the second one does not. Multiply the second fraction by the factor it is missing.**

$\frac{2x}{x^2 - 1} + \frac{3x + 3}{x^2 - 1} = \frac{2x + 3x + 3}{x^2 - 1}$ ← **Simplify the numerators.**

$= \frac{5x + 3}{x^2 - 1}$

Exercises

Simplify the following using the flowchart.

1. $\frac{x + 1}{x^2 - 4} + 3$

2. $\frac{2x - 5}{x^2 + 3x + 2} + \frac{4}{x + 2}$

3. $\frac{3z + 2}{16 - z^2} + \frac{3}{z - 4}$

4. $\frac{x + 1}{x + 5} - \frac{5}{x^2 + 6x + 5}$

5. $\frac{1}{x^2 - 9} + \frac{4}{x + 3}$

6. $\frac{x + 1}{x + 3x + 2} + \frac{2}{x + 2}$

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