Topic 4.4 Adding and Subtracting Rational Expressions

Essential Question:

How do you rewrite rational expressions to find sums and differences?

Critique & Explain

Complete online.

CONCEPT Summary

Concept Summary Assess

CONCEPT SUMMARY **Find Sums and Differences of Rational Expressions**

WORDS	To add or subtract rational expressions with common denominators, add the numerators and keep the denominator the same.	To add or subtract rational expressions with different denominators, rewrite each expression so that its denominator is the LCD, then add or subtract the numerators.
NUMBERS	$\frac{1}{5}+\frac{3}{5}+\frac{1+3}{5}=\frac{4}{5}$	$\frac{1}{6}+\frac{1}{15}=\frac{1}{2\cdot 3}+\frac{1}{3\cdot 5}$ $=\frac{1\cdot 5+1\cdot 2}{2\cdot 3\cdot 5}$
ALGEBRA	$\frac{x}{x+4}+\frac{5}{x+4}=\frac{x+5}{x+4}$	$\frac{x+3}{x^2-1}+\frac{2}{x^2-3x+2}$ $=\frac{x+3}{(x+1)(x-1)}+\frac{2}{(x-1)(x-2)}$ Rewrite the rational expressions using the LCD. $=\frac{(x+3)(x-2)}{(x+1)(x-1)(x-2)}+\frac{2(x+1)}{(x+1)(x-1)(x-2)}$

Q: Are the steps for subtracting two rational expressions the same as the steps for adding two rational expressions?

Notes:

Examples & Questions

Examples 1

Q: What do you notice about the denominators in part (a)?
Q: What do you notice about the denominators in part (b)?

Examples 2

Q: How can you find the LCM of two rational expressions if the polynomials cannot be factored?
Q: How could the LCM of two polynomials be one of the polynomials?

Examples 3

Q: Why would you want to find the sum using LCM instead of any other common multiple?
Q: How is thinking about adding fractions with unlike denominators helpful when adding rational expressions with unlike denominators?

Examples 4

Q: How is subtracting rational expressions similar to adding rational expressions?
Q: How is the Distributive Property used when subtracting rational expressions?

Examples 5

Q: How do you know that you are supposed to add the two rational expressions?
Q: How is the table a useful tool when solving this problem?

Examples 6

Q: What do you notice about a compound fraction that is different from other fractions?
Q: Is there another method you could use to write a simpler from of the compound fraction?

Practice and Problem Solving

Complete MathXL for School: Practice and Problem Solving (online)
Complete MathXL for School: Enrichment (online)

Challenge: #30, 32, 35 – key will be posted in Power School Learning.

Lesson Quiz 4.4