

8.3 Day 1 Adding and Subtracting Rational Expressions

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Goal: Add and subtract rational expressions with and without common denominators

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Add or Subtract.

What happens to the denominator when you add fractions?

1.  $\frac{3}{4} + \frac{3}{4} = \frac{6}{4} = \boxed{\frac{3}{2}}$
2.  $\frac{5}{8} - \frac{1}{8} = \frac{4}{8} = \frac{1}{2}$
3.  $\frac{n}{2n} + \frac{3n}{2n} = \frac{4n}{2n} = \boxed{2}$
4.  $\frac{2x}{x^4} + \frac{4x}{x^4} = \frac{6x}{x^4} = \frac{6}{x^3}$

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1. Get common denominator

2. Add or Subtract

3. Factor and Reduce

5.  $\frac{m^2 + 2m}{m + 4} + \frac{3m + 4}{m + 4} = \frac{(m+4)(m+1)}{m+4} = m+1$
6.  $\frac{3y^2}{y+1} + \frac{3y}{y+1} = \frac{3y^2 + 3y}{y+1} = \frac{3y(y+1)}{y+1} = \boxed{3y}$
7.  $\frac{3k - 18}{k^2 - 16} + \frac{6}{k^2 - 16}$
8.  $\frac{6y - 6}{y^2 + 4y - 12} - \frac{y + 4}{y^2 + 4y - 12}$

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Adding and Subtracting Rational expressions with unlike monomial denominators

Think LCM!!!

$$\frac{3}{4} + \frac{2}{3} = \frac{3 \cdot 3}{4 \cdot 3} + \frac{2 \cdot 4}{3 \cdot 4} = \frac{9}{12} + \frac{8}{12} = \frac{17}{12}$$

$$\frac{7}{5x} - \frac{1}{5x} = \frac{7-1}{5x} = \frac{6}{5x}$$

$$\frac{2n}{5n^3} + \frac{4n}{2n^2 \cdot 5n} = \frac{4n + 20n^2}{10n^3} = \frac{4n(5n+1)}{10n^3} = \frac{2(5n+1)}{5n^2}$$

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Try on Own!!!

$$\frac{2 \cdot 6x}{2 \cdot 5x^3} + \frac{3 \cdot x}{10x^2 \cdot x} = \frac{12x}{10x^3} + \frac{3x}{10x^3} = \frac{15x}{10x^3} = \frac{3}{2x^2}$$

$$\frac{9x \cdot 8}{9x \cdot 7x} - \frac{5x \cdot 7}{9x^2 \cdot 7} = \frac{72x}{63x^2} - \frac{35x}{63x^2} = \frac{37x}{63x^2} = \frac{37}{63x}$$

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Assignment:

Puzzle sheet (both sides)

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