Agenda

1)DO NOW
- Get as far as you can to simplify #1 and #2

2)Examples 1-4

5.6: Objective: To Add and Subtract Rational Expressions

3)Levels 1-2 Practice Worksheets

HW: Study Guide Worksheet 5-6 #1 - 6, 9 - 12

5.6: Sums and Differences of Rational Expressions

Objective: To Add and Subtract Rational Expressions

1) Simplify: $\frac{4}{15}+\frac{13}{15}-\frac{7}{15}$	Steps:
2) Simplify: $\frac{25}{42}+\frac{11}{18}-2$	Steps:

3) Simplify: $\frac{1}{6a^2} - \frac{1}{2ab} + \frac{3}{8b^2}$	Steps:
4) Simplify: $\frac{3}{x^2+x-6} - \frac{2}{x^2-3x+2}$	Steps:

5.6: Sums and Differences of Rational Expressions

Objective: To Add and Subtract Rational Expressions

1) Simplify:	Steps:
$\frac{4}{15}+\frac{13}{15}-\frac{7}{15}$ $\frac{4+13-7}{15}$ $\frac{10}{15}$ $\frac{2}{3}$	a) You may add numerators if the denominators are equal. b) Simplify the numerator c) Reduce the fraction to its simplest form

2) Simplify:	Steps: You may only add or subtract fractions if denominators are equal.
$\frac{25}{42}+\frac{11}{18}-2$ $42 = 2\cdot 3\cdot 7,\ \ 18 = 2\cdot 3\cdot 3$ So... $LCD = 2\cdot 3\cdot 3\cdot 7 = 126$ $\frac{25}{42}\cdot\frac{3}{3}+\frac{11}{18}\cdot\frac{7}{7}-2\cdot\frac{126}{126}$ $\frac{75}{126}+\frac{77}{126}-\frac{252}{126}$ $\frac{75+77-252}{126}$ $\frac{-100}{126}$ $=\frac{-50}{63}$	a) Find the Lowest Common Denominator (LCD) b) Multiply each fraction by the needed factors to create the LCD c) Express each fraction as an equivalent fraction with the LCD as the denominator d) You may add numerators if the denominators are equal. b) Simplify the numerator c) Reduce the fraction to its simplest form

3) Simplify:

$$\frac{1}{6a^2}-\frac{1}{2ab}+\frac{3}{8b^2}$$

$2\cdot 3\cdot a\cdot a, \quad 2\cdot a\cdot b, \quad 2\cdot 4\cdot b\cdot b$

$LCM = 2\cdot 3\cdot 4\cdot a\cdot a\cdot b\cdot b = 24a^2b^2$

$$\frac{1}{6a^2}\cdot\frac{4b^2}{4b^2}-\frac{1}{2ab}\cdot\frac{12ab}{12ab}+\frac{3}{8b^2}\cdot\frac{3a^2}{3a^2}$$

$$\frac{4b^2}{24a^2b^2}-\frac{12ab}{24a^2b^2}+\frac{9a^2}{24a^2b^2}$$

$$\frac{4b^2-12ab+9a^2}{24a^2b^2}$$

$$\frac{(2b-3a)(2b-3a)}{24a^2b^2}$$

$$\frac{(2b-3a)^2}{24a^2b^2}$$

Steps: *You may only add or subtract fractions if denominators are equal.*

a) *Find the Lowest Common Denominator (LCD)*

b) *Multiply each fraction by the needed factors to create the LCD*

c) *Express each fraction as an equivalent fraction with the LCD as the denominator*

d) *You may add numerators if the denominators are equal.*

e) *Simplify the numerator-Can you factor? If so, Factor!*

f) *Reduce the fraction to its simplest form*

4) Simplify:

$$\frac{3}{x^2+x-6}-\frac{2}{x^2-3x+2}$$

$$\frac{3}{(x+3)(x-2)}-\frac{2}{(x-2)(x-1)}$$

$$\frac{3}{(x+3)(x-2)}\cdot\frac{(x-1)}{(x-1)}-\frac{2}{(x-2)(x-1)}\cdot\frac{(x+3)}{(x+3)}$$

$$\frac{3(x-1)-2(x+3)}{(x+3)(x-2)(x+3)}$$

$$\frac{3x-3-2x-6}{(x+3)(x-2)(x+3)}$$

$$\frac{x-9}{(x+3)(x-2)(x+3)}$$

Steps: *You may only add or subtract fractions if denominators are equal.*

a) *Find the Lowest Common Denominator (LCD). In order to do this you must FACTOR!*

b) *Multiply each fraction by the needed factors to create the LCD*

c) *You may add numerators when the denominators are equal.*

d) *Simplify the numerator.*

e) *Reduce the fraction to its simplest form*

Practice: Level 1

Kuta Software - Infinite Algebra 1

Adding + Subtracting Rational Expressions

Simplify each expression.

1) $\frac{u+5v}{8v^2u^2} - \frac{u-6v}{8v^2u^2}$

2) $\frac{5n}{30m} + \frac{2m+4n}{30m}$

3) $\frac{a+2b}{6a^3} - \frac{5a+4b}{6a^3}$

4) $\frac{x+y}{18xy} - \frac{6x+y}{18xy}$

5) $\frac{4a-5}{6a^2+30a} + \frac{a-1}{6a^2+30a}$

6) $\frac{5x-4}{9x^3+27x^2} - \frac{x+6}{9x^3+27x^2}$

Practice: Level 2

Kuta Software - Infinite Algebra 1

Adding + Subtracting Rational Expressions

Simplify each expression.

7) $\frac{b-3}{12b+18}+\frac{4b}{12b+18}$

8) $\frac{n-4}{n^2-n-20}+\frac{n+1}{n^2-n-20}$

9) $\frac{7x}{2x}-\frac{x-2}{20x+16}$

10) $\frac{8}{7v-6}+\frac{4}{3v^2}$

11) $\frac{7v}{8}-\frac{8v-4}{5v-2}$

12) $\frac{4}{n+7}-\frac{7}{n-2}$

HW: Study Guide Worksheet 5-6 #1 - 6, 9 - 12

Practice: Level 1

Kuta Software - Infinite Algebra 1

Adding + Subtracting Rational Expressions

Simplify each expression.

1) $\frac{u+5v}{8v^2u^2} - \frac{u-6v}{8v^2u^2}$

$\frac{11}{8vu^2}$

2) $\frac{5n}{30m} + \frac{2m+4n}{30m}$

$\frac{9n+2m}{30m}$

3) $\frac{a+2b}{6a^3} - \frac{5a+4b}{6a^3}$

$\frac{-2a-b}{3a^3}$

4) $\frac{x+y}{18xy} - \frac{6x+y}{18xy}$

$-\frac{5}{18y}$

5) $\frac{4a-5}{6a^2+30a} + \frac{a-1}{6a^2+30a}$

$\frac{5a-6}{6a^2+30a}$

6) $\frac{5x-4}{9x^3+27x^2} - \frac{x+6}{9x^3+27x^2}$

$\frac{4x-10}{9x^3+27x^2}$

Practice: Level 2

Kuta Software - Infinite Algebra 1

Adding + Subtracting Rational Expressions

Simplify each expression.

7) $\frac{b-3}{12b+18} + \frac{4b}{12b+18}$

$\frac{5b-3}{12b+18}$

8) $\frac{n-4}{n^2-n-20} + \frac{n+1}{n^2-n-20}$

$\frac{2n-3}{n^2-n-20}$

9) $\frac{7x}{2x} - \frac{x-2}{20x+16}$

$\frac{69x+58}{4(5x+4)}$

10) $\frac{8}{7v-6} + \frac{4}{3v^2}$

$\frac{24v^2+28v-24}{3v^2(7v-6)}$

11) $\frac{7v}{8} - \frac{8v-4}{5v-2}$

$\frac{35v^2-78v+32}{8(5v-2)}$

12) $\frac{4}{n+7} - \frac{7}{n-2}$

$\frac{-3n-57}{(n+7)(n-2)}$