

Name:

Date:

Period:

7.2 Adding & Subtracting Rationals Notes

Adding & Subtracting Rational Expressions

1. Rewrite using a COMMON DENOMINATOR.
2. COMBINE the numerators and **keep** the common denominator.
3. Factor, if possible, the numerator and simplify the rational expression.

Examples With a common denominator

Directions: Simplify.

$$1. \frac{13a}{4a^2} + \frac{5a}{4a^2}$$

$$\frac{13a + 5a}{4a^2}$$

$$\frac{18a}{4a^2} \rightarrow \frac{9}{2a} \quad a \neq 0$$

$$2. \frac{9x+12}{16} - \frac{7x+2}{16}$$

$$\frac{9x+12 - (7x+2)}{16}$$

$$\frac{2x+10}{16}$$

$$\frac{2(x+5)}{16}$$

$$\frac{(x+5)}{8}$$

$$3. \frac{y^2+8y}{y^2-9} + \frac{2y+21}{y^2-9}$$

$$(y-3)(y+3)$$

$$\frac{y^2+8y+2y+21}{(y-3)(y+3)}$$

$$\frac{y^2+10y+21}{(y-3)(y+3)}$$

$$\frac{(y+7)(y+3)}{(y-3)(y+3)}$$

$$\frac{y+7}{y-3} \quad y \neq -3, 3$$

$$4. \frac{1}{12a-3} - \frac{16a^2}{12a-3}$$

$$\frac{1-16a^2}{12a-3}$$

$$12a-3$$

$$\frac{(1-4a)(1+4a)}{3(4a-1)}$$

$$-1(4a-1)(1+4a)$$

$$\frac{-1(4a-1)(1+4a)}{3(4a-1)}$$

$$3(4a-1)$$

$$\frac{-(1+4a)}{3}$$

$$a \neq \frac{1}{4}$$

change +

	<p>5. $\frac{n^2+3n-7}{n^2+n-6} - \frac{(n+1)}{n^2+n-6}$</p> $\frac{n^2+3n-7-n-1}{(n+3)(n-2)} \leftarrow \text{factor}$ $\frac{n^2+2n-8}{(n+3)(n-2)}$ $\frac{(n+4)(n-2)}{(n+3)(n-2)}$ <p>$\frac{n+4}{n+3} \quad n \neq -3, 2$</p>	<p>6. $\frac{13k^2-9k}{6k^2-5k+1} + \frac{k^2+2k}{6k^2-5k+1}$</p> $\frac{14k^2-7k}{(3k-1)(2k-1)}$ $\frac{7k(2k-1)}{(3k-1)(2k-1)}$ <p>$\frac{7k}{3k-1} \quad k \neq \frac{1}{3}, \frac{1}{2}$</p>
<p>Finding a common denominator</p>	<p>7.</p>	<p>8.</p>
<p>Examples With an uncommon denominator</p>	<p>Directions: Simplify.</p> <p>9. $\frac{15}{2x} - \frac{16}{3x}$</p>	<p>10. $\frac{k^2+16}{5k-10} - \frac{4}{k-2}$</p>