

Add & Subtract Rational Expressions

1. Perform the indicated operations for each problem below.

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

b) $\frac{4r}{r+3} - \frac{5}{r}$

2. Write each sum or difference as a single rational expression.

a) $\frac{1}{x} - \frac{1}{x-1}$

b) $\frac{3x}{2y} - \frac{5x}{6y} + \frac{x}{3y}$

c) $\frac{1}{p-2} - \frac{1}{p+2}$

d) $\frac{1}{p-2} + \frac{1}{2-p}$

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1. Perform the indicated operations for each problem below.

$$\text{a) } \frac{3}{a+2} + \frac{4}{a-5}$$

$$\begin{aligned} & \frac{3}{a+2} + \frac{4}{a-5} \\ &= \frac{3a-15}{(a+2)(a-5)} \\ &+ \frac{4a+8}{(a+2)(a-5)} \\ &= \frac{7a-7}{(a+2)(a-5)} \end{aligned}$$

$$\text{b) } \frac{4r}{r+3} - \frac{5}{r}$$

$$\begin{aligned} & \frac{4r}{r+3} - \frac{5}{r} \\ &= \frac{4r^2}{r(r+3)} - \frac{5r+15}{r(r+3)} \\ &= \frac{4r^2-5r-15}{r(r+3)} \end{aligned}$$

2. Write each sum or difference as a single rational expression.

$$\text{a) } \frac{1}{x} - \frac{1}{x-1}$$

$$-\frac{1}{x(x-1)}$$

$$\text{b) } \frac{3x}{2y} - \frac{5x}{6y} + \frac{x}{3y}$$

$$\frac{x}{y}$$

$$\text{c) } \frac{1}{p-2} - \frac{1}{p+2}$$

$$\frac{4}{(p-2)(p+2)}$$

$$\text{d) } \frac{1}{p-2} + \frac{1}{2-p}$$

$$0$$

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