

Ex. 6 $\frac{5(x+2)}{4x^2} + \frac{x+1(2+x)}{2x^2+4x}$
 $2x(x+2)$

① Factor

② LCD: $4x^2(x+2)$
 $\frac{5(x+2) + (x+1)2x}{4x^2(x+2)}$

$5x+10+2x^2+2x$

$$\frac{2x^2+7x+10}{4x^2(x+2)}$$

Ex. 7 $\frac{7(x+3)}{3x-9} - \frac{x+4(3)}{x^2-9}$

$3(x-3)(x+3)(x-3)$

LCD: $3(x-3)(x+3)$

$\frac{7(x+3) - (x+4)3}{3(x-3)(x+3)}$

$3(x-3)(x+3)$

$7x+21-3x-12$

$$\frac{4x+9}{3(x-3)(x+3)}$$

Try it! Add or subtract.

6. $\frac{8x}{3+x} - \frac{7}{2+x}$

DIV

$\frac{7}{x+1} - \frac{3}{x+3}$

$$(x+2)$$

$$\frac{4x+9}{3(x-3)(x+3)}$$



$$6. \quad \frac{x+1(x-3)}{(x+3)(x+3)} + \frac{6(x+3)}{(x+3)(x-3)}$$



$$\text{LCD: } (x+3)(x+3)(x-3)$$

$$\frac{(x+1)(x-3) + 6(x+3)}{(x+3)(x+3)(x-3)}$$

$$(x+3)(x+3)(x-3)$$

$$x^2 - 2x - 3 + 6x + 18$$

$$\frac{x^2 + 4x + 15}{(x+3)(x+3)(x-3)}$$

g & Subtracting

PIER FUNCTIONS

Complex Fraction – a fraction that contains a fraction in its numerator or denominator.

Ex. 8 Simplify: $\frac{\frac{8}{5x}}{\frac{x+1}{15} + \frac{4}{15}}$

- ~~Answer~~ ① Combine like fractions
 ② Multiply by the reciprocal
 ③ Cancel

$$\frac{x+1+4}{15} = \frac{x+5}{15}$$

$$\frac{\frac{8}{5x}}{\frac{x+5}{15}}$$

$$\frac{8}{5x} \cdot \frac{15}{x+5} = \frac{24}{x(x+5)}$$

Ex. 9 Simplify: $\frac{\frac{2x}{x+1}}{\frac{1}{3x} + \frac{2}{x+1}}$

~~Answer~~ $\frac{2x}{x+1} \cdot \frac{3x(x+1)}{7x+1} = \frac{6x^2}{7x+1}$

LCD: $3x(x+1)$

$$\frac{x+1+6x}{3x(x+1)} \cdot \frac{7x+1}{3x(x+1)}$$

Try it! Simplify.

LCD: $2x^2$
 $\frac{5x+14}{2x^2}$

7. $2 \cdot \frac{\frac{5}{2x} + \frac{7}{x^2}}{\frac{3}{x^2} + \frac{1}{2x}}$

8. $\frac{\frac{6x}{4} - \frac{x}{4}}{\frac{8}{2} + \frac{3x}{2}}$

LCD: $2x^2$ denominator

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

$$\frac{5x+14}{2x^2} \cdot \frac{2x^2}{6-x}$$

Simplify: $\frac{\frac{2x}{x+1}}{\frac{1}{3x} + \frac{2}{x+1}}$

~~Cancel~~ $\frac{2x}{x+1} \cdot \frac{3x(x+1)}{7x+1} = \frac{6x^2}{7x+1}$

$\cdot 3x(x+1)$

$\frac{x+1 + 6x}{3x(x+1)}$

$\frac{7x+1}{3x(x+1)}$

Try it! Simplify.

LCD: $2x^2$

7. $2 \cdot \frac{\frac{5}{2x} + \frac{7 \cdot 2}{x^2}}{\frac{3}{x^2} - \frac{1}{2x}}$

$\frac{5x+14}{2x^2}$

8. $\frac{\frac{6x}{8} - \frac{x}{4}}{\frac{4}{2} + \frac{3x}{2}}$

LCD: $2x^2$

denominator

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

$\frac{5x+14}{2x^2} \cdot \frac{2x^2}{6-x}$

$\frac{5x+14}{6-x}$

Complex Fractions