

Section 6.5 Focus Exercises

1. Build up each fraction so that it has the new (target) denominator. **SHOW ALL STEPS.**

a) Build up both $\frac{5}{8x^2}$ and $\frac{x+1}{6x^3}$

to have a new denominator of $24x^3$.

b) Build up both $\frac{3x+1}{x+4}$ and $\frac{9}{5x}$

to have a new denominator of $5x(x+4)$.

c) Build up both $\frac{x+2}{x(x+5)}$ and $\frac{3x+1}{(x-4)(x+5)}$ to have a new denominator of $x(x-4)(x+5)$.

d) Build up both $\frac{x-1}{(x-2)(x+2)}$ and $\frac{x+3}{(x-2)^2}$ to have a new denominator of $(x+2)(x-2)^2$.

2. For each pair of fractions, find a common target denominator; then, build up each fraction so that it has the new (target) denominator. You may need to factor the denominator(s) first.

a) $\frac{6}{x}$ and $\frac{x}{x-4}$

b) $\frac{x+1}{x^2-2x}$ and $\frac{6}{x}$

c) $\frac{x}{x^2-4}$ and $\frac{3}{x^2+2x}$

d) $\frac{x+1}{x^2+2x-8}$ and $\frac{1}{x^2+4x}$

3. Perform the operation. Simplify your result, if possible. (Remember to write the denominators in factored form, even if the only monomial factor is 1.)

a) $\frac{x+3}{4x^2} + \frac{5}{12x}$

b) $\frac{x}{x+12} - \frac{2}{x}$

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

d) $\frac{x}{x-4} - \frac{x+12}{x^2-4x}$

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

f) $\frac{x-1}{3x+6} - \frac{x+4}{x^2+2x}$

4. Perform the operation. Simplify your result, if possible. (Remember to write the denominators in factored form, even if the only monomial factor is 1.)

a) $\frac{x-8}{x^2+5x-6} + \frac{1}{x^2-x}$

b) $\frac{10}{x^2-25} - \frac{7}{x^2+3x-10}$

c) $\frac{7x-2}{x^2-9} + \frac{5x+4}{9-x^2}$

d) $\frac{x^2-20}{x^2-5x} - \frac{x-10}{5x-x^2}$