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 $\frac{x+1}{6x^3}$ b) Build up both $\frac{3x+1}{x+4}$ and $\frac{9}{5x}$

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

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