## 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 $\frac{5}{8 x^{2}}$ and $\frac{x+1}{6 x^{3}}$
b) Build up both $\frac{3 x+1}{x+4}$ and $\frac{9}{5 x}$ to have a new denominator of $24 \mathrm{x}^{3}$.
to have a new denominator of $5 x(x+4)$.
c) Build up both $\frac{x+2}{x(x+5)}$ and $\frac{3 x+1}{(x-4)(x+5)}$ 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) $\frac{x+1}{x^{2}-2 x}$ and $\frac{6}{x}$
c) $\frac{x}{x^{2}-4}$ and $\frac{3}{x^{2}+2 x}$
d) $\frac{x+1}{x^{2}+2 x-8}$ and $\frac{1}{x^{2}+4 x}$
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) $\frac{x+3}{4 x^{2}}+\frac{5}{12 x}$
b) $\frac{x}{x+12}-\frac{2}{x}$
c) $\frac{2 x}{x-1}+\frac{x+3}{x+1}$
d) $\frac{x}{x-4}-\frac{x+12}{x^{2}-4 x}$
e) $\quad \frac{x^{2}+3}{x^{2}-9}+\frac{2}{x+3}$
f) $\frac{x-1}{3 x+6}-\frac{x+4}{x^{2}+2 x}$
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) $\frac{x-8}{x^{2}+5 x-6}+\frac{1}{x^{2}-x}$
b) $\quad \frac{10}{x^{2}-25}-\frac{7}{x^{2}+3 x-10}$
c) $\quad \frac{7 x-2}{x^{2}-9}+\frac{5 x+4}{9-x^{2}}$
d) $\frac{x^{2}-20}{x^{2}-5 x}-\frac{x-10}{5 x-x^{2}}$
