1. Factor the expression $10x^2 + 4x - 32$.

2. Given $f(x) = x^2 - 2x$ and real numbers $a$ and $h$, compute and simplify the quantity $f(a + h) - f(a)$ so that $h$ is a factor of the expression.

3. Simplify the function $f(x) = \sqrt{32(x + 3)} - \sqrt{18(x + 3)}$.

4. Some calculus problems will require you to find where two functions are equal. For what values of $x$ are the following functions equal: $f(x) = \frac{3}{x} + \frac{3}{4}$ and $g(x) = \frac{12}{x}$?
5. If \( f(x) = \sqrt{1 - x^2} \) and \( g(x) = \sin(3x) \). Write the compositions \( f(g(x)) \) and \( g(f(x)) \) and state their domains.

6. Write an equation of the line passing through points \((2,3)\) and \((5,7)\).

7. Find an equation of the line tangent to the parabola \( y = 5 - 3x - x^2 \) at the point where \( x = 2 \).

8. If

\[
f(x) = \frac{9x^2 - 4}{3x} \quad \text{and} \quad g(x) = \frac{3x + 2}{4x^2}
\]

Let \( h(x) \) be \( f(x)/g(x) \) in simplified form. Do \( h(x) \) and \( f(x)/g(x) \) have the same domain? If not, what point(s) are in the domain of \( h(x) \) but not in the domain of \( f(x)/g(x) \)?