1. Let \( f(x) = \sqrt{x^2 - 5} \) and \( g(x) = \frac{12}{3x - 2} \). Evaluate \( (f \circ g)(2) \).

2. Find the equation of the line through the point \((-2, 0)\) with slope \( \frac{2}{3} \) and sketch the graph of the line.
Graph of $f$ for problems 3 and 4.

3. The graph of a function $f$ is shown above. Use the graph to find the following limits when they exist.
   a) $\lim_{x \to -1^-} f(x)$
   b) $\lim_{x \to -1^+} f(x)$
   c) $\lim_{x \to 1^-} f(x)$
   d) $\lim_{x \to 2} f(x)$

4. Use the same graph to determine if the function is continuous for the following values of $x$.
   a) $x = -1$
   b) $x = 0$
   c) $x = 1$
   d) $x = 2$
5. Let \( f(x) = \frac{1}{x-1} \) and \( g(x) = \frac{x-1}{x} \). Find a formula for \((f \circ g)(x)\). Be sure to simplify your answer if possible.

6. Find the limit if it exists.

\[
\lim_{x \to 2} \frac{x^2 - 4x + 4}{x - 2}
\]
7. Find the limit if it exists.
\[
\lim_{{x \to -\infty}} \frac{3x^3 + 13x - 10}{x^3 - 30}
\]

8. Find the limit if it exists.
\[
\lim_{{x \to \infty}} \frac{2x^2 - x + 4}{x^3 - 30}
\]

9. Find the values of \(x\) for which the function \(f(x) = \frac{x-1}{x+5}\) is continuous.
10. Find the slope of the tangent line to the graph of the function \( f(x) = \frac{1}{x} \) at the point \( (2, \frac{1}{2}) \).

11. Find the derivative \( f'(x) \) for the function \( f(x) = 4 - 3x^2 \).
12. The depth (in meters) of a Weddell seal $t$ minutes after beginning a dive is approximated by the function $f(t) = -5t^2 + 40t$ for $0 \leq t \leq 8$.

a) What is the average diving speed of the seal over the time interval $[1, 3]$?

b) What is the instantaneous diving speed of the seal when $t = 1$?