1. Consider the function 
\[ f(x) = 3x^2 - 5x + 5. \]

a. Is \( f(x) \) continuous at \( x = -2 \)? If the function is continuous, then evaluate \( f(-2) \).
b. Does \( f(x) \) have a limit at \( x = -2 \)? If the function has a limit, then evaluate \( \lim_{x \to -2} f(x) \).

2. Consider the function 
\[ f(x) = \frac{6}{4 + x}. \]

a. Is \( f(x) \) continuous at \( x = 1 \)? If the function is continuous, then evaluate \( f(1) \).
b. Does \( f(x) \) have a limit at \( x = 1 \)? If the function has a limit, then evaluate \( \lim_{x \to 1} f(x) \).

3. Consider the function 
\[ f(x) = \frac{5}{x^2 - 1}. \]

a. Is \( f(x) \) continuous at \( x = 1 \)? If the function is continuous, then evaluate \( f(1) \).
b. Does \( f(x) \) have a limit at \( x = 1 \)? If the function has a limit, then evaluate \( \lim_{x \to 1} f(x) \).

4. Consider the function 
\[ f(x) = \frac{x^2 - 11x + 24}{x - 8}. \]

a. Is \( f(x) \) continuous at \( x = 8 \)? If the function is continuous, then evaluate \( f(8) \).
b. Does \( f(x) \) have a limit at \( x = 8 \)? If the function has a limit, then evaluate \( \lim_{x \to 8} f(x) \).

5. The figure below on the left shows the graph of a function defined for \( x \in [-1, 2] \).
At \( x = 0 \) and \( x = 1 \), determine what the function value is (if it exists).
Also, find the limit as \( x \to 0 \) and \( x \to 1 \), if the limits exist.
6. The figure above on the right shows the graph of a function defined for \( x \in [-1,3] \).
At \( x = 0, \ x = 1 \) and \( x = 2 \), determine what the function value is (if it exists).
Also, find the limit as \( x \to 0, \ x \to 1, \) and \( x \to 2 \) if the limits exist.

7 a. Consider \( f(x) = 2x - x^2 \). Evaluate the expression
\[
\frac{f(x + h) - f(x)}{h}
\]
(Note that your answer should include both \( x \) and \( h \)).

b. Take the limit as \( h \to 0 \) and find \( f'(x) \), the derivative of \( f(x) \).

8 a. Consider \( f(x) = \frac{3}{x+3} \). Evaluate the expression
\[
\frac{f(x + h) - f(x)}{h}
\]
(Note that your answer should include both \( x \) and \( h \)).

b. Take the limit as \( h \to 0 \) and find \( f'(x) \), the derivative of \( f(x) \).