SHOW ALL YOUR WORK!
If you have time, find a way to check your answers.

**Part 1**

1. [7 points] Evaluate \( \lim_{t \to 0} \frac{\cos(7t)}{6t - 7} \)

2. [7 points] Evaluate \( \lim_{x \to 0^-} \frac{x}{|x|} \). Note that this is a left-sided limit.

3. [7 points] Evaluate \( \lim_{x \to \infty} \frac{9}{x^2} \)
4. [7 points] Evaluate \( \lim_{w \to 0} \frac{\sin(9w)}{7w} \)

5. [7 points] Use the definition of continuity to evaluate [note that your answer must be a number]

\[
\lim_{t \to 0} \cos(t + \sin(t))
\]

6. [7 points] For what (numerical) value of the constant \( c \) is the function

\[
f(x) = \begin{cases} 
  x^4 + cx & \text{if } x > -1 \\
  cx^2 + x & \text{if } x \leq -1 
\end{cases}
\]

continuous on \((-\infty, \infty)\)? (Justify your answer!)
Part 2

1. [12 points] Evaluate the following limits (allow for infinite limits):
   (a) \( \lim_{v \to 0} \frac{1 + \cos(v)}{|v|} \)
   (b) \( \lim_{v \to 0} \frac{1 - \cos^2(2v)}{v^2} \)

2. [21 points] Find all asymptotes (horizontal or vertical) of the function \( y = \frac{2x^2 - 2}{x^2 - x - 2} \).
3. [8 points] Given the following graph:

(a) Find all vertical asymptotes (if any):

(b) Find all horizontal asymptotes (if any):
4. [17 points] Given the function \( f(x) = \frac{x^2 - 9}{x^2 - 4} \) determine:

(a) the domain of \( f \).

(b) The vertical asymptotes, if any.

(c) the horizontal asymptotes, if any (show work here to justify your answer).