1. (2 points) Compute \( \lim_{t \to 0} \frac{\sin(7t)}{t} \).

**Solution:** Recall that we proved in class that \( \lim_{\theta \to 0} \frac{\sin(\theta)}{\theta} = 1 \). To compute the given limit, multiply the numerator and denominator by 7. Then let \( \theta = 7t \). Then as \( x \to 0 \), we have \( \theta \to 0 \).

\[
\lim_{t \to 0} \frac{\sin(7t)}{t} = \lim_{t \to 0} \frac{7 \sin(7t)}{7t} = 7 \lim_{t \to 0} \frac{\sin(7t)}{7t} = 7 \lim_{\theta \to 0} \frac{\sin(\theta)}{\theta} = 7 \cdot 1 = 7.
\]

2. (3 points) (Definition) A function \( f \) is **continuous** at an interior point \( c \) of its domain if

**Solution:**

\[
\lim_{x \to c} f(x) = f(c).
\]

3. (5 points) Complete the statement of the **Intermediate Value Theorem**.

Let \( f \) be a function on the interval \([a, b]\). Let \( y_0 \) be any value between \( f(a) \) and \( f(b) \). Then there exists a \( c \) between \( a \) and \( b \) such that \( f(c) = y_0 \).

**Solution:** Let \( f \) be a **continuous** function on the interval \([a, b]\). Let \( y_0 \) be any value between \( f(a) \) and \( f(b) \). Then there exists a \( c \) between \( a \) and \( b \) such that \( f(c) = y_0 \).