Q1. Evaluate the limits

\[ i. \lim_{x \to \pi} \frac{\sin 2x}{x} \quad \quad \quad ii. \lim_{x \to 1} \frac{\tan (x - 1)}{x^2 - 1} \]

Q2. \[ \lim_{x \to \frac{-\pi}{2}} \frac{\cos(x)}{2x + \pi} \] represents a derivative of some function \( f \) at a point \( x = a \). Find \( f \) and \( a \).

Q3. Evaluate \[ \frac{d}{dx} \left( \frac{x \sin x}{\sec x} \right) \]

Q4. The velocity of a body moving in a straight line is \( v(t) = t^3 - 3t^2 \) (m/sec).

a- When does the body changes the direction?

b- Find the speed of the body at each time the acceleration is zero.