NAME:

Show ALL your work CAREFULLY.

The graph of a function \( s(t) \) is given below.

(i) Find \( s'(1) \) and \( s(3) \).

Since the slope of the tangent to the graph of \( s(t) \) at \( t = 1 \) is equal to 1, we have \( s'(1) = 1 \). The number \( s(3) \) is simply the value of \( s \) at \( t = 3 \) and therefore \( s(3) = 1 \) for \((3, 1)\) is on the graph of \( s(t) \).

(ii) Find \( \lim_{t \to 2} s(t) \) if the limit exists.

The function \( s(t) \) is continuous at \( t = 2 \) and \( s(2) = 2 \). It follows that \( \lim_{t \to 2} s(t) = 2 \).

(iii) Find \( \lim_{t \to 2} s'(t) \) if the limit exists.

The graph of \( s(t) \) does NOT have a well-defined tangent at \( t = 2 \). The limit \( \lim_{t \to 2} s'(t) \) does NOT exist.

(iv) Sketch the graph of \( s'(t) \), the derivative function of \( s(t) \).