

Calculus I SI Worksheet

2.1-2.3 Tangent Lines & Limit Laws

1. The position of a vehicle over time t can be represented by the following equation:

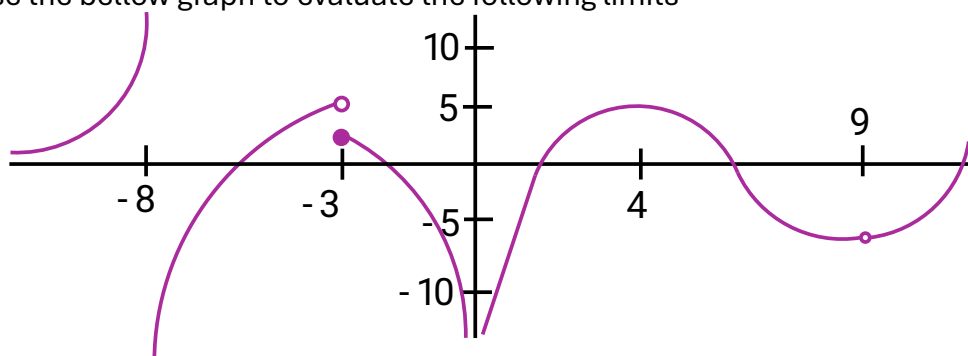
$$S(t) = 3.6 + 1.9t - 0.2t^2$$

a) Find the average velocity from $t=1$ to $t=4$

b) Find the average velocity from $t=3$ to $t=4$

c) Find the instantaneous velocity at $t=4$

2. Use the bellow graph to evaluate the following limits



a) $\lim_{x \rightarrow -8^-} f(x)$

f) $\lim_{x \rightarrow -3^+} f(x)$

b) $\lim_{x \rightarrow -8^+} f(x)$

g) $\lim_{x \rightarrow 4} f(x)$

c) $\lim_{x \rightarrow -8} f(x)$

h) $\lim_{x \rightarrow 9} f(x)$

d) $\lim_{x \rightarrow 0} f(x)$

i) $f(-3)$

e) $\lim_{x \rightarrow -3^-} f(x)$

j) $f(9)$

3. Evaluate the following limits numerically.

a) $f(x) = \frac{x+3}{x-1}$

$$\lim_{x \rightarrow 1^-} f(x)$$

$$\lim_{x \rightarrow 1^+} f(x)$$

b) $f(x) = \frac{x^2+x-6}{x-2}$

$$\lim_{x \rightarrow 2} f(x)$$