Math 108
Spring 2024
Dr. Lily Yen

Quiz Two

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Score: ___/10

Problem 1: Consider a CapU athlete running a 40 m dash. The position of the athlete is given by

$$d(t) = \frac{t^3}{7} + 4t,$$

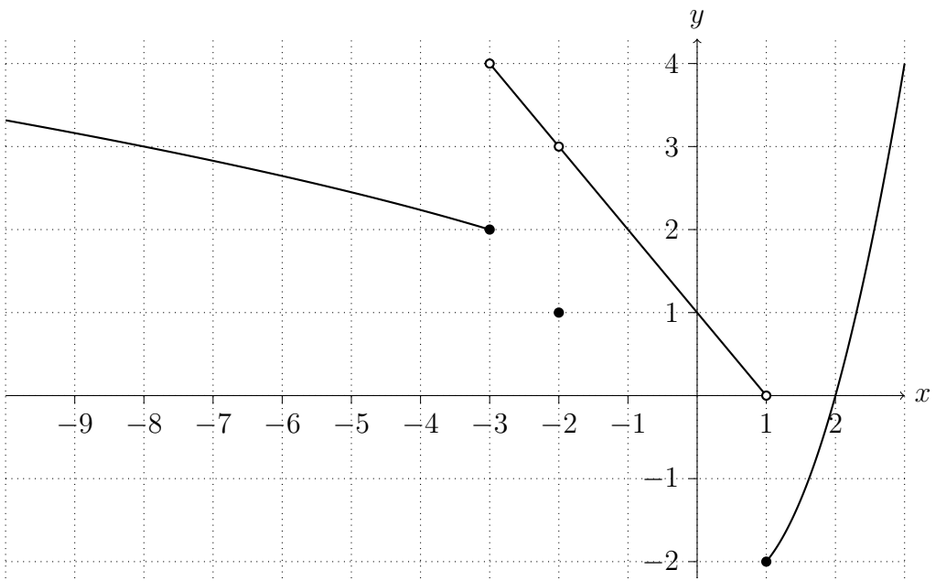
where d is the position in meters and t is the time elapsed, measured in seconds. Use a permissible graphing calculator (TI83, TI83+, TI84-Plus) to make a table of values of average velocity of the athlete in order to find the instantaneous velocity **three** seconds after the runner began the dash. Clearly state your Y_1 and Y_2 from your graphing calculator.

Interval	Y2
3.000 s–4.000 s	9.286 m/s
3.000 s–3.500 s	8.536 m/s
3.000 s–3.100 s	7.987 m/s
3.000 s–3.010 s	7.870 m/s
2.990 s–3.000 s	7.844 m/s
2.999 s–3.000 s	7.856 m/s
Limit	7.857 m/s

$Y_1 = x^3/7 + 4x, \quad Y_2 = (Y_1(x) - Y_1(3))/(x - 3)$

Score: /4

Problem 2: Answer the following questions according to the graph of $y = f(x)$ as shown. Note three hollow dots: $(-3, 4)$, $(-2, 3)$, and $(1, 0)$; also two solid dots $(-3, 2)$, and $(1, -2)$.



a. $\lim_{x \to -2} f(x) =$ 3

b. $f(-2) =$ 1

c. $\lim_{x \to 1} f(x) =$ DNE

d. $\lim_{x \to -3^+} f(x) =$ 4

e. $\lim_{x \to -1} \dfrac{f(x) - 2}{x + 1} =$ -1

Score: /6