

Quiz Three

Show all your work

Name: _____
 Number: _____
 Signature: _____
 Score: ____/10

Problem 1: Suppose that the height above street level of a water balloon t seconds after it was thrown off Fir building's office is given by $s(t) = -4.9t^2 + 3t + 14$ metres. Use a permissible graphing calculator (TI83, TI83+, TI84-Plus) to make a table of values for the average velocity of the water balloon to estimate the instantaneous velocity of the water balloon **two** seconds after it was thrown. Clearly state your Y_1 and Y_2 from your graphing calculator. Provide at least 4 decimal places.

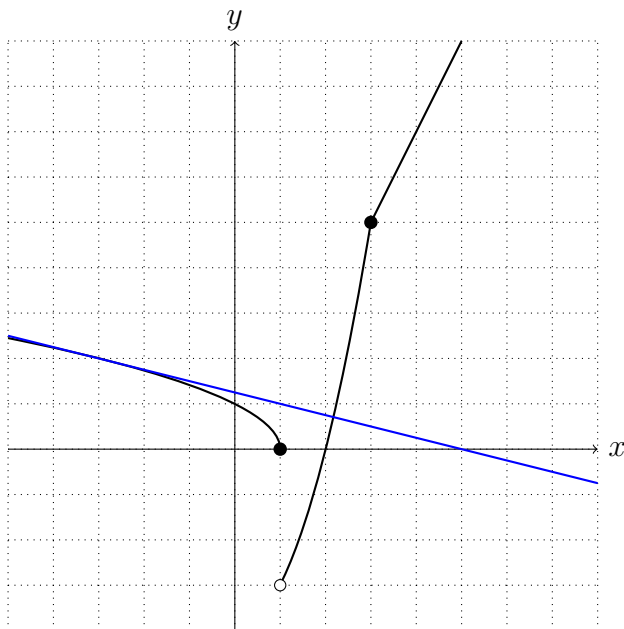
Interval	Y_2
1.0000 s–2.0000 s	–11.7000 m/s
1.5000 s–2.0000 s	–14.1500 m/s
1.9000 s–2.0000 s	–16.1100 m/s
1.9900 s–2.0000 s	–16.5510 m/s
2.0000 s–2.0100 s	–16.6490 m/s
2.0000 s–2.0010 s	–16.6049 m/s
Limit	–16.6000 m/s

$$Y_1 = -4.9 * t^2 + 3 * t + 13,$$

$$Y_2 = (Y_1(x) - Y_1(2))/(x - 2)$$

Score: /4

Problem 2: Answer the following questions according to the graph of $y = f(x)$ as shown. Note one hollow dot at $(1, -3)$ and one solid dot at $(1, 0)$.



a. $f(1) =$ 0

b. $\lim_{x \rightarrow 1^-} f(x) =$ 0

c. $\lim_{x \rightarrow 1^+} f(x) =$ -3

d. $\lim_{x \rightarrow 1} f(x) =$ DNE

e. $\lim_{x \rightarrow 4} \frac{f(x) - f(4)}{x - 4} =$ 2

f. Estimate $\lim_{x \rightarrow -3} \frac{f(x) - 2}{x + 3} =$ -0.25
 Score: /6