

Show all work.

1. (7 points) Identify the domains of the following functions:

(a) (4 points) $g(t) = \sqrt{3-t} - \ln(2+t)$

(b) (3 points) $f(x) = \frac{2x^3-5}{x^2+x-6}$

2. (4 points) This table indicates the position of a bicyclist at several points within the first 5 seconds of a race:

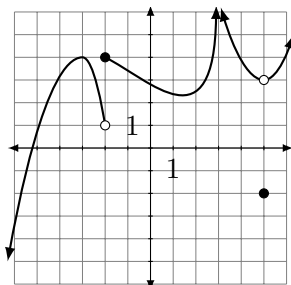
Time elapsed (in seconds)	0.0	1.0	2.0	3.0	4.0	5.0
Distance traveled (in meters)	0.00	3.00	7.00	12.30	18.00	24.70

(a) (2 points) What is the biker's average speed in the first two seconds of the race?

(b) (2 points) What is the biker's average speed between the times $t = 1$ and $t = 4$?

(c) (3 points) The detailed records indicate that 4.99 seconds into the race, the bicyclist had progressed 24.635 meters. Based on this information, what would be a good estimate for the instantaneous speed after 5 seconds?

3. (6 pts) Below is the graph of a function $f(x)$. For each of the six quantities listed to the right, give its value if it has a value, or specifically state that it does not exist.



$f(-2)$

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

$\lim_{x \rightarrow -2^+} f(x)$

$\lim_{x \rightarrow 5} f(x)$

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

$\lim_{x \rightarrow 3} f(x)$

4. (2 point bonus) If for every value of x it is the case that $f(-x) = -f(x)$ and $g(-x) = g(x)$, what (if anything) can be said about $f(f(x))$, $f(g(x))$, $g(f(x))$, and $g(g(x))$? Justify your claims on the back of this paper.