Any answers which require logarithms to be expressed should be put in terms of natural or common logarithms. Show all work.

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

   (a) **(4 points)** $g(t) = \sqrt{6-2t} + \ln(2+t)$

   (b) **(3 points)** $f(x) = \frac{4x-16}{x^2+x-6}$

2. **(3 points)** Find the equation of the line through the points $(-1, 3)$ and $(3, 15)$.

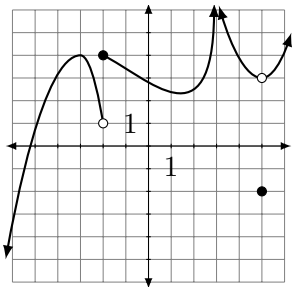
3. **(4 points)** This table indicates the position of a runner in the first 5 seconds of a race:

| Time elapsed (in seconds) | 0.0 | 1.0 | 2.0 | 3.0 | 4.0 | 5.0 |
|---|---|---|---|---|---|---|
| Distance traveled (in meters) | 0.0 | 1.2 | 5.4 | 11.6 | 16.2 | 26.0 |

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

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

4. **(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.




$f(-2)$

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

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

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

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

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

5. **(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.