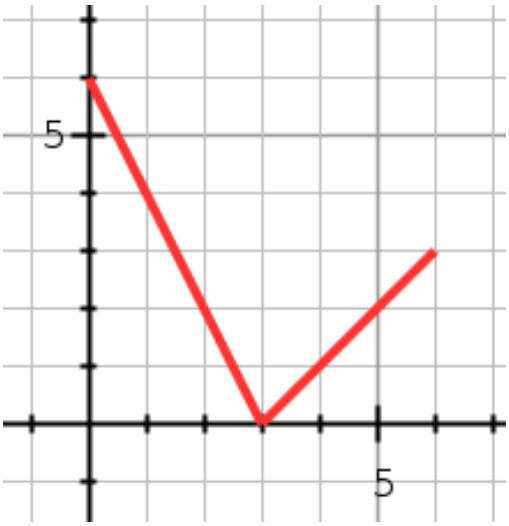
MTH 151
Quiz 1
Fall 2018

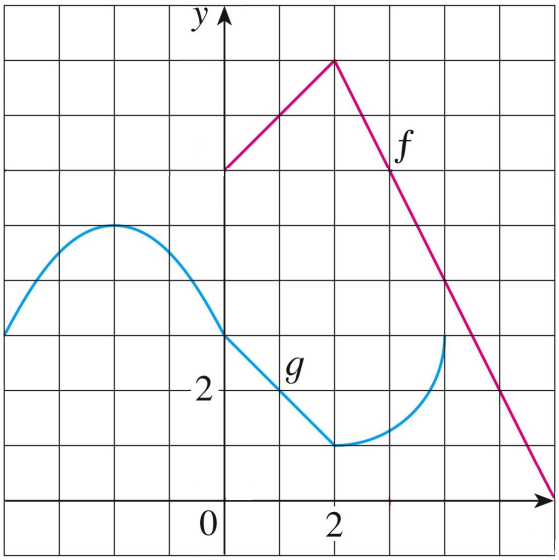
Show all work in a neat and organized fashion. Clearly indicate your answers.
20 points possible.

Graphing calculator OK but not one with CAS (e.g., no TI-89, no TInspire).

1. (5 pts.) Find a piecewise expression for the function whose graph is the given curve.



2. (5 pts.) Consider the given graphs of f and g.



Evaluate each expression, or explain why it is undefined.

(a) $f(g(2))$

(b) $(f \circ g)(0)$

(c) $(g \circ f)(6)$

(d) $(g \circ g)(2)$

(e) $(f \circ f)(5)$

3. (5 pts.) Evaluate the limit, if it exists. Your answer must be fully supported with symbolical (algebraic) work.

$$\lim_{x \to 0} \frac{\sqrt{36 + x} - 6}{4x}$$

4. (5 pts.) Researchers measured the average blood alcohol concentration $C(t)$ of eight men starting one hour after consumption of 30 mL of ethanol (corresponding to two alcoholic drinks).

t (hours)	1.0	1.5	2.0	2.5	3.0	3.5
$C(t)$ (g/dL)	0.038	0.028	0.021	0.014	0.006	0.003

(a) Find the average rate of change of C with respect to t over the time interval $[1.0, 2.5]$. Show your work. Include the units in your answer.

You do *not* have to write a sentence to interpret the meaning of your answer.

(b) Use the data in the table (without graphing) to estimate the rate at which C was changing at $t = 1.5$. Show your work. Include the units in your answer.

You do *not* have to write a sentence to interpret the meaning of your answer.