4. [10 points] Below is the graph of a piecewise-linear function $\ell(x)$.
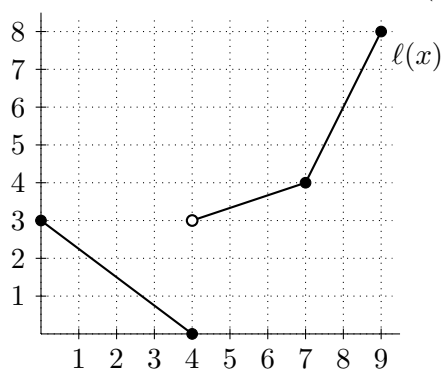

For each of the following, circle the correct answer. You do not need to show your work.

a. [2 points] Find $g'(e^2)$, where $g(x) = \ell(\ln x)$.

$$-3/4 \qquad\qquad -3/(4e^2) \qquad\qquad 2/e^2 \qquad\qquad -4/3 \qquad\qquad 2$$

b. [2 points] Find $m'(5)$, where $m(x) = \ell(x)\cos(\pi x)$.

$$\pi/3 \qquad\qquad -\pi/3 \qquad\qquad 1/3 \qquad\qquad -1/3 \qquad\qquad 0$$

c. [2 points] Find $h'(8)$, where $h(x) = \ell(\ell(x))$.

$$2/3 \qquad\qquad 4 \qquad\qquad 2 \qquad\qquad 1/3 \qquad\qquad 4/3$$

d. [2 points] Find $i'(6)$, where $i(x) = \ell^{-1}(x)$.

$$-3/121 \qquad\qquad -9/121 \qquad\qquad 1/3 \qquad\qquad 2 \qquad\qquad 1/2$$

e. [2 points] Find $j'(2)$, where $j(x) = \dfrac{\ell(x)}{x^2}$.

$$-9/4 \qquad\qquad 9/4 \qquad\qquad -9/16 \qquad\qquad 3/16 \qquad\qquad -3/16$$