

2. [12 points] Suppose that the line tangent to the graph of  $f(x)$  at  $x = 3$  passes through the points  $(1, 2)$  and  $(5, -4)$ .
- a. [3 points] Find  $f'(3)$ .
- b. [3 points] Find  $f(3)$ .
- c. [3 points] Estimate the value of  $f(2.9)$ .
- d. [3 points] If the graph of  $f$  is concave up, is your estimate in part (c) an overestimate, an underestimate, or can you not tell? Explain or demonstrate your answer graphically.