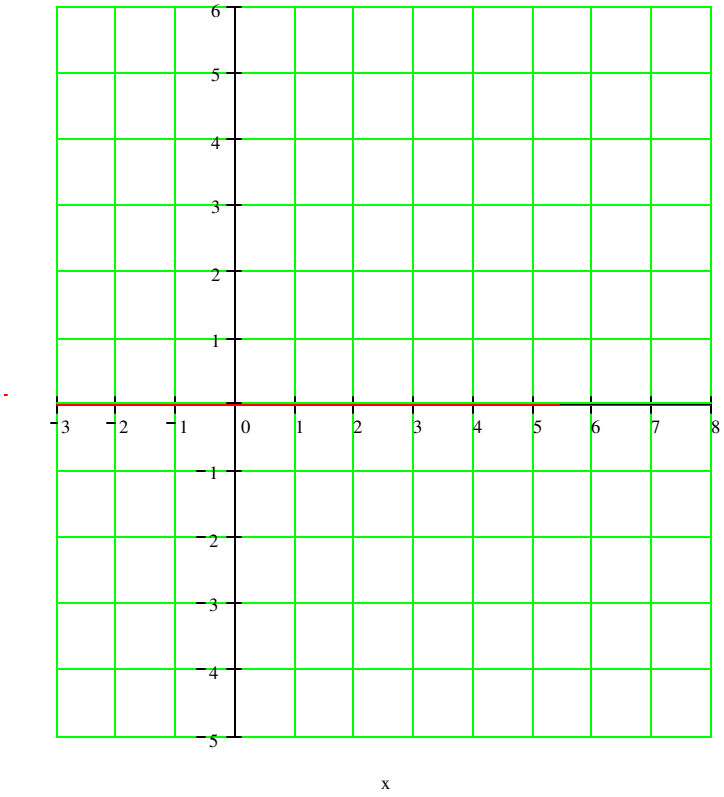
(3.) (6 pts) (a) On the axes below, sketch a graph of a single *differentiable* function, $y = f(x)$, which has ***all*** of the following features:

- $f(5) = 4$
- $f'(5) = -1$
- $f'(x) > 0$ for all $x < 4$
- $f''(x) > 0$ for all $x < 2$
- $f''(x) < 0$ for all $x > 2$
- $f'(x) < 0$ for all $x > 4$



(b) (4 pts) Using the given information, find an equation of the line tangent to the graph of f at $x = 5$.

(c) (2 pts) Use your answer from part (b) to approximate $f(6)$.

(d) (3 pts) From the ***given*** conditions (*i.e.*, not just from your graph), should the approximation in part (c) be an overestimate or an underestimate? Explain--using a complete sentence.