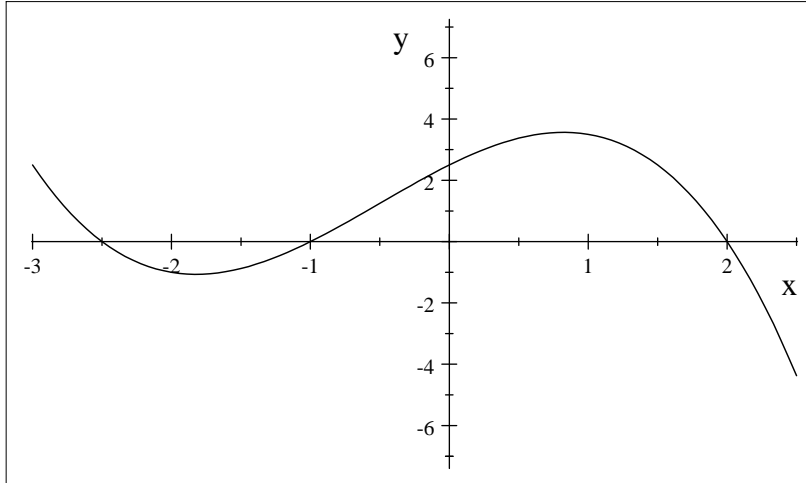


Show your work in details and provide reasons to support your answers.

1. (3pts) The graph of  $f(x)$  is given below.
  - a. Sketch **the secant line** that passes through points on the graph of  $f(x)$  where  $x = -2.5$  and  $x = 0$ .
  - b. Sketch **the tangent line** to the graph of  $f(x)$  at points where  $x = 2$ .
  - c. Estimate all  $x$  values at which the slope of the tangent line to the curve  $y = f(x)$  is 0.



c.

2. (5pts) Find the **slope** (by definition) and **equation** of the tangent line to the curve  $y = x^2 - 5x$  at the point where  $x = 2$ .

3. (4pts) Find the **slope** (by definition) of the tangent line to the curve  $y = \frac{2}{x+1}$  at the point where  $x = 1$ .