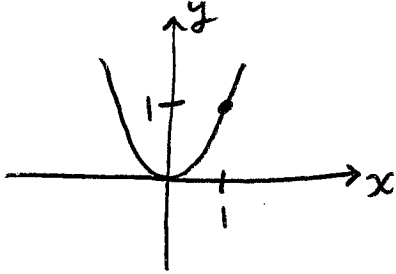
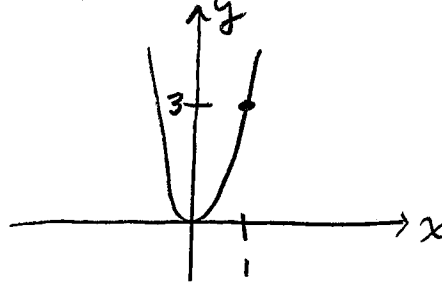


(1) [8 points] Neatly sketch the graph of the function  $f(x) = 3(x+1)^2 - 2$

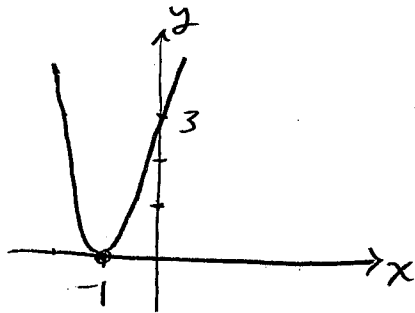
①  $y = x^2$



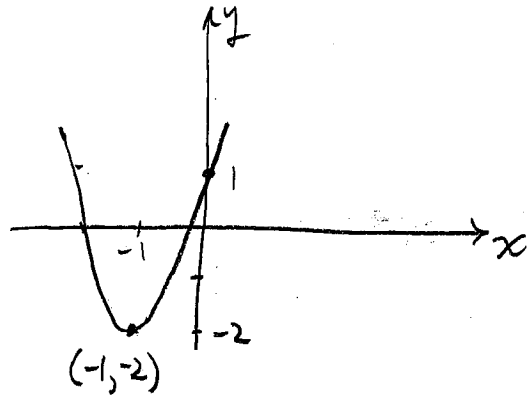
②  $y = 3x^2$



③  $y = 3(x+1)^2$

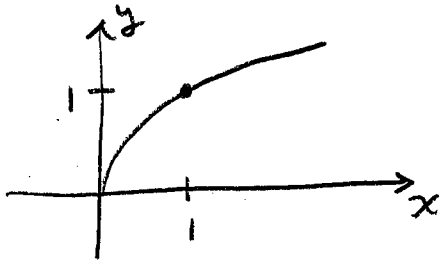


④  $y = 3(x+1)^2 - 2$

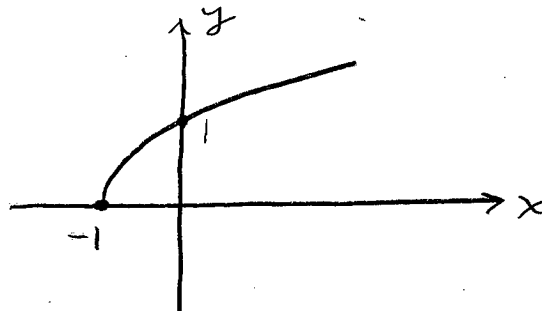


(2) [7 points] Neatly sketch the graph of the function  $f(x) = \sqrt{x+1} - 2$

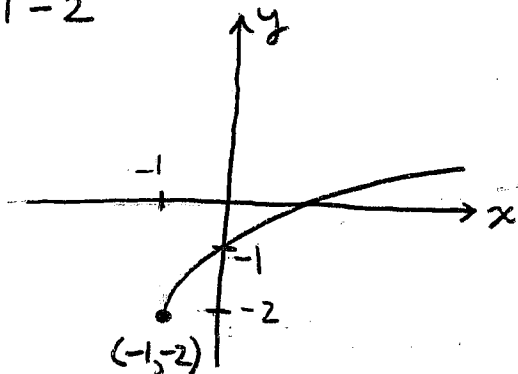
①  $y = \sqrt{x}$



②  $y = \sqrt{x+1}$



③  $y = \sqrt{x+1} - 2$



(3) [5 bonus points] Reduce to lowest terms:

$$\begin{aligned} & \frac{x^3 + x^2}{x^3 + 1} \\ &= \frac{x^2(x+1)}{(x+1)(x^2 - x + 1)} \\ &= \frac{x^2}{x^2 - x + 1} \end{aligned}$$