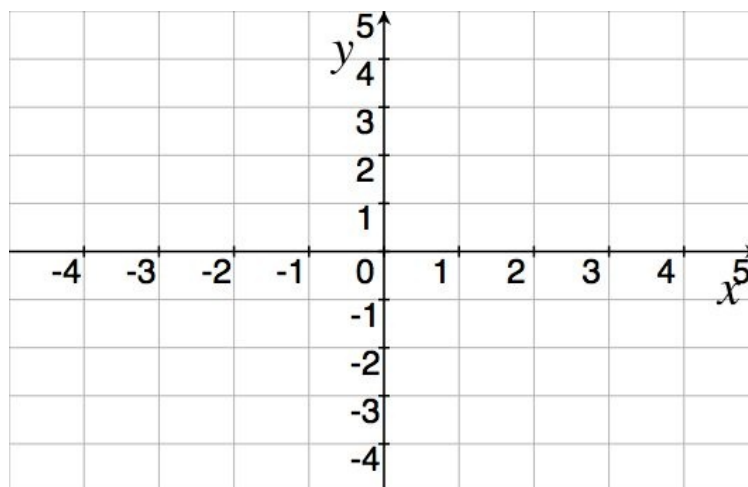# Quiz 2

Show *all* your work. No credit is given without reasonable supporting work. There are *two* sides to this quiz.

1. [3] (§2.7 #1 &14) Draw a function $\alpha$ that satisfies the following criteria:
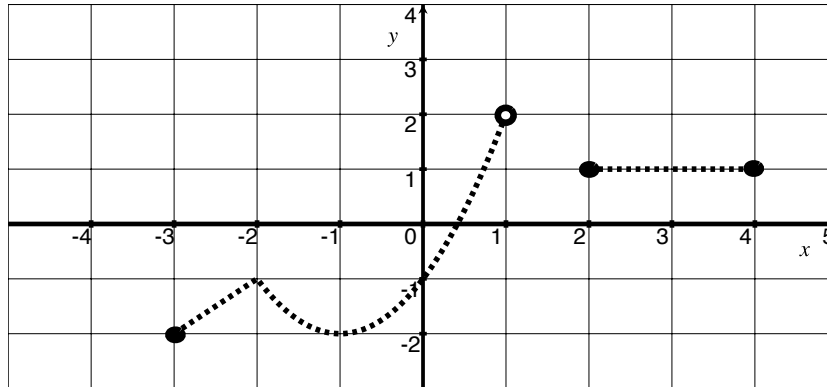
   (a) $\alpha(1) = -2$

   (b) $\alpha$ is decreasing on the interval $[-3, 2]]$

   (c) the average rate of change between $x = 1$ and $x = 4$ is 2

2. [2] (Line Wks #6) Let the graph of the function $\beta$ be a line with slope $\frac{-1}{3}$ and assume it passes through the point $(3, 4)$. Find the rule of $\beta$.

3. Consider the following piece-wise defined graph of $g$.



(a) [1] (§2.7 #20b) Evaluate $(g \circ g)(0)$.

(b) [4] (§2.4 #11 & §1.10 #14) The function $g$ is comprised of two lines and a parabola. The parabola has been shifted both vertically and horizontally (but not stretched vertically in anyway). Use your knowledge of lines and graph transformations to find a formula for $g$ in the indicated form:

$$g(x) = \begin{cases} & \text{if } -3 \le x < -2 \\ & \text{if } -2 \le x < 1 \\ & \text{if } 2 \le x \le 4 \end{cases}$$

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