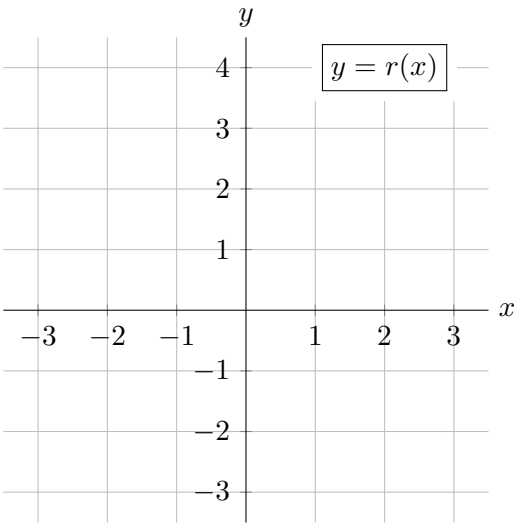
6. [9 points]

a. [5 points] Carefully draw the graph of a single function on the given axes that satisfies the given conditions.

A continuous function $r(x)$ with domain containing $(-3, 3)$ such that

- $r(x)$ decreasing and concave up on $(-3, 0)$,
- $r(x)$ is increasing and concave down on $(0, 3)$,
- $\lim_{h \to 0^-} \dfrac{r(h) - r(0)}{h} = 0$,
- $\lim_{h \to 0^+} \dfrac{r(h) - r(0)}{h} = \infty$.



b. [4 points] A portion of the graph of the function $h(x)$ is shown below on the left. Note that $h(x)$ is linear for $x > 2$. Carefully sketch the graph of $h'(x)$ for $-4 < x < 4$ on the given axes on the right.