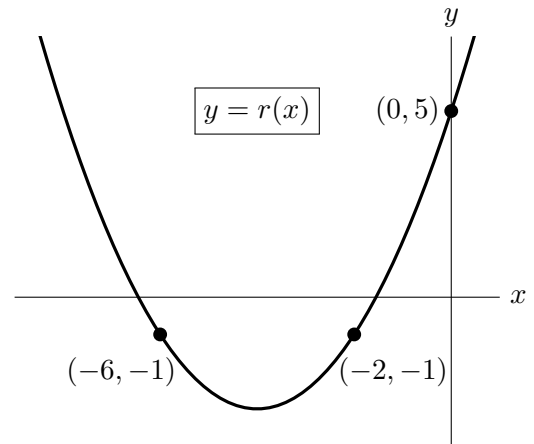**5.** [8 points] For each part of this problem, you must **show every step** of any algebraic work that is required.

 a. [3 points] The quadratic function $q(x)$ has its vertex at the point $(2, 4)$ and a zero at $x = 5$. Find a formula for $q(x)$.

Answer: $q(x) =$ _____

 b. [5 points] Find a formula for the quadratic function $r(x)$ graphed below.

Answer: $r(x) =$ _____