

QUIZ**SHOW ALL WORK AND JUSTIFY ALL ANSWERS.**

1. Consider the function $f(x) = 0.5x^2 + 2x - 1$.

(a) (1 point) Find the vertex:

(b) (1 point) Does the vertex occur at a maximum or minimum?

2. Suppose a company has a price-demand function of $p(x) = -0.05x + 55$, $0 \leq x \leq 1100$, where x is the number of items and $p(x)$ is the price per item (in dollars), compute
- (a) (2 points) the revenue function of the sale of x items.

 - (b) (2 points) the number of items sold when $R(x)$ is maximized. Include units.

 - (c) (2 points) the maximum revenue. Include units.

 - (d) (2 points) the price per item when revenue is maximized. Include units.