

Name:

## QUIZ 1

You must show all of your work for full credit.

**Problem 1** (5 points). Find an equation of the line passing through  $(1, 1)$  and perpendicular to  $x + y = 4$ .

**Problem 2** (5 points). Sketch graphs of the functions  $f(x) = \sqrt{x}$  and  $g(x) = \sqrt{x - 2} + 2$ .

**Problem 3** (5 points). Suppose the supply and demand for a certain widget are given by

$$p = S(q) = 4q + 10 \text{ and } p = D(q) = 50 - 4q.$$

Find the equilibrium quantity and price for this widget.

**Problem 4** (5 points). The manager of a peach farm is trying to decide when to arrange for picking the peaches. If they are picked now, the average yield per tree will be 100 lb, which can be sold for 48¢ per pound. The yield will increase about 5 lb per week, while the price will decrease about 2¢ per week. When should the peaches be picked in order to maximize revenue?