

### Math 120 Winter 2001 Quiz 1

Name\_\_\_\_\_

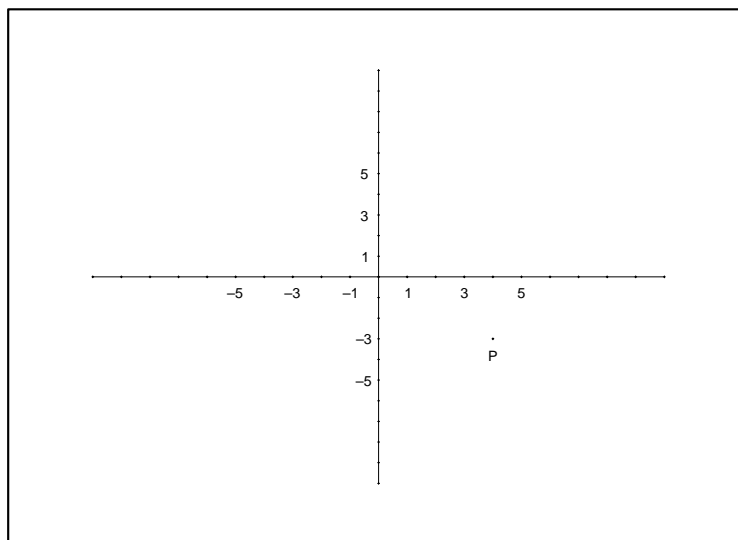
Section\_\_\_\_\_

TA\_\_\_\_\_

*This is a closed book exam. One sheet of formulas is allowed. You have 20 minutes.*

#### Problem 1

a) What are the coordinates of the point P drawn below ?



b) Let Q be the point of coordinates  $(-6,1)$ . Draw Q in the coordinates system above.

c) What is the distance between Q and the point R of coordinates  $(-3,-1)$ ?

d) Write the equations of the line parallel to the x axis (that is the horizontal line) passing through Q and the line parallel to the y axis (that is the vertical line) passing through Q.

horizontal line :

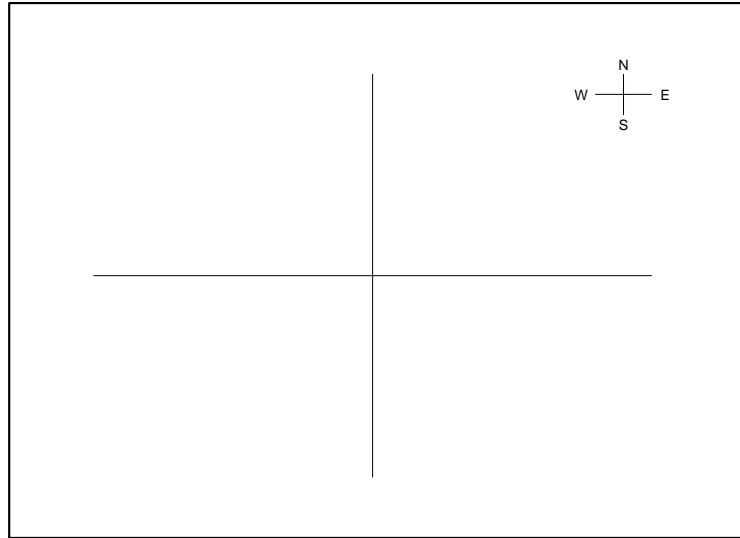
vertical line :

**Problem 2** Show your work for credit.

The Seattle coast guard receives a warning that a ship has broken down off the North America Pacific Coast. The ship has spilled some oil into the Ocean, and, as a result, a circular oil spill centered 150 miles North and 100 miles west of Seattle of radius 20 miles is visible on the Ocean. A vessel that was stationing 380 miles South of the center of the spill starts moving towards it at the velocity of 100 knots.

a) The knot is a maritime speed unit.  $1 \text{ knot} = 1 \text{ nautical mile/hour}$  or  $1 \text{ knot} = 6,076.12 \text{ feet/hour}$  (a nautical mile is different from a mile). Convert the velocity of 100 knots into miles per hour.

b) Impose a coordinate system centered at Seattle, and write down the equation of the boundary of the oil spill with respect to that system. Drawing a picture below might be useful.



c) When will the vessel reach the boundary of the oil spill ?