

University of Calgary  
Faculty of Science  
Department of Mathematics and Statistics

Math 249

Fall 2005

Worksheet 2

1. Determine the equation of a straight line in each case:
  - a. The straight line passes through the point  $A(2,1)$  and has a slope of  $-2$ .
  - b. The straight line contains the points  $A(3,-4)$  and  $B(-1,2)$ .
  - c. The straight line has  $y$ -intercept  $= 5$  and  $x$ -intercept  $= -3$ .
  - d. The straight line is parallel to the straight line  $3x - 4y = 12$  and passes through the point  $(-2,-3)$ .
  - e. the straight line is perpendicular to the straight line  $4x + 5y = -20$  and passes through the mid-point of the line segment  $AB$  where  $A$  has coordinates  $(-1,1)$  and  $B$  has coordinates  $(5,-2)$ .
2. Determine the equation of the circle which has diameter  $AB$  where  $A$  and  $B$  are the points given in 1(e).
3. Determine the equation of the circle which has centre at  $(-2,1)$  and which passes through the point  $(2,4)$ .
4. Determine the equation of the circle whose centre is at the point of intersection of the lines  $2x - 3y = 7$  and  $3x + 5y = 1$ , and which has a radius of 4 units.
5. Determine the equation of the circle which is tangent to the  $x$ -axis and which has centre at the point  $(3,-1)$ .
6. Determine the equation of the circle which is tangent to the  $y$ -axis and which has centre at the point  $(4,-2)$ .