

DIAGNOSTIC TEST: ANALYTIC GEOMETRY

Name:

Surname:

1. Find an equation for the line that passes through the point $(2, -5)$ and
 - a) has slope -3
 - b) is parallel to the x -axis
 - c) is parallel to the line $2x - 4y = 3$

2. Find an equation for the circle that has center $(-1, 4)$ and passes through the point $(3, -2)$.

3. Find the center and radius of the circle with equation $x^2 + y^2 - 6x + 10y + 9 = 0$.

4. Let $A(-7, 4)$ and $B(5, -12)$ be points in the plane.
 - a) Find an equation of the line that passes through A and B . What are the intercepts?
 - b) Find the midpoint of the segment AB .
 - c) Find the length of the segment AB .
 - d) Find an equation of the perpendicular bisector of AB .

5. Sketch the region in the xy -plane defined by the inequalities.
 - a) $-1 \leq y \leq 3$
 - b) $y < 1 - \frac{1}{2}x$
 - c) $|x| < 4$ and $|y| < 2$