

## MATH 10250 Homework 1

1. Find the equation of the circle with center at  $(0,1)$  and passing through  $(2,3)$ .

First, we determine the radius using the distance formula:

$$r = \sqrt{(2-0)^2 + (3-1)^2} = \sqrt{8}.$$

The equation of the circle with center  $(0,1)$  and radius  $\sqrt{8}$  is then

$$x^2 + (y-1)^2 = 8$$

2. Sketch the straight line represented by the equation

$$-8x + 4y + 16 = 0$$

First, we must express the equation in slope intercept form:

$$\begin{aligned} -8x + 4y + 16 = 0 &\Rightarrow 4y = 8x - 16 \\ &\Rightarrow y = 2x - 4. \end{aligned}$$

Therefore, our line must have slope 2 and y-intercept -4.

