**4** The points A(2, 1) and B(0, –5) lie on a circle, where the line AB is a diameter of the circle.

**a)** Find the centre and radius of the circle.

centre = ....., radius = .....

**(3 marks)**

**b)** Show that the point (4, –1) also lies on the circle.

**(2 marks)**

**c)** Show that the equation of the circle can be written in the form $x^2 + y^2 - 2x + 4y - 5 = 0$.

**(2 marks)**

**d)** Find the equation of the tangent to the circle at point A, giving your answer in the form $y = mx + c$.

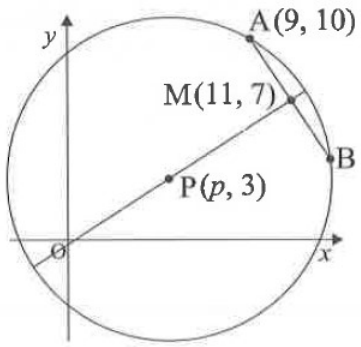
.....

**(3 marks)**

**5** The diagram shows a circle with centre P.
The line AB is a chord with midpoint M.

**a)** Show that $p = 5$.

The diagram shows a chord, so think about which circle property might apply.




**(5 marks)**

**b)** Find the equation of the circle.

.....

**(3 marks)**

6 The circle with equation $x^2 - 6x + y^2 - 4y = 0$ crosses the $y$-axis at the origin and the point A.

**a)** Find the coordinates of point A.

.....

**(2 marks)**

**b)** Write the equation of the circle in the form $(x - a)^2 + (y - b)^2 = c$.

.....

**(3 marks)**

**c)** Write down the radius and the coordinates of the centre of the circle.

radius = ....., centre = .....

**(2 marks)**

**d)** The tangent to the circle at point A meets the $x$-axis at point B. Find the exact distance AB.

.....

**(6 marks)**