Higher Maths question bank :: Paper 1

07. Circles

1. Circle C has equation $(x-2)^2+(y-4)^2=10$, is intersected at two points by line L which has equation $y+5=2x$.
   Find the distance between the points of intersection of C and L.

2. Circle C has equation $(x-2)^2+(y+4)^2=20$. Point P $(4,0)$ sits on C.
   Find the equation of the tangent of C at point P.

3. Circle C has equation $x^2+y^2+2x+8y+9=0$.
   Circle D has centre (3, 7) and the same radius as C.
   Find the equation of circle D.

4. Circle C has equation $(x+2)^2+(y+4)^2=20$. Point Q $(-6,-2)$ sits on C.
   Find the equation of the tangent of C at point Q.

5. Circle C has equation $x^2+y^2-6x+4y+2=0$.
   Circle D has the same centre as C, and has radius $\sqrt{5}$.
   Find the equation of circle D.

6. Circle C has equation $(x-2)^2+(y-4)^2=20$ is intersected at two points by line L, with equation $y-x=4$.
   Find the midpoint of the points of intersection.