Assignment for HSC 1st year students

Subject: Higher maths-1st paper

Name of topic :Geometry(Straight Line and Circle)

Answer the questions:

1.Two equations of straight lines are 2x-y-4=0, x+3y-9=0.
a) For which value of k, the line x+ky-1=0 and the given lines will be concurrent?
b)Find the equations of line passing through the intersection point 1st and 2nd straight lines and parallel to the y-axis.
c) Determine the acute angle produced by the lines.

2.A Rectangular span of 'Padma Bridge' is placed on the four pillar; the coordinate of two pillars of those are A(1,0) and B(3,2).The equationsof one edge of anther square shaped span isx+ y=1.
a) Find the polar coordinate of the point B.
b) If one pillar of the rectangular shaped span is on the y-axis,find the coordinates of the pillar and the area of the span.
c) If the terminating points of other edges of the square shaped span are on the axes and it is placed on the four pillars then find the coordinate of the pillars the equationsof other edges.

3.The points of intersection of the lines 5x-4y+1=0 and -8x+7y+1=0 lines in the room of stationmaster. A rail line is along the straight line4x+3y-5=0.
a)Find the equations of the straight line passing through the points (-1,2) and (3,-5).
b)Find the equations of the perpendicular drawn from the point in the of the stationmaster to the rail line.
c) Find the equation of the bisector the acute that the line 3x-4y+6=0 makes with the rail line.

4.Scenario: x^2+y^2-10x-16y+64=0 is acircle and 4x+3y+8=0 is a straight line.
a) Find the center radius of the circle $2x^2+2y^2$+4x+6y+8=0.
b) Show that the lines 3x-4y-8=0 touches the circle of the scenario and find the point of contact.
c) Find the equations of the circles with center(0,-1) and which touches the straight line of the scenario.

5.x^2+y^2-8x-6y+16=0 and x2+y2=4.
a) Convert the polar form of the circle x^2+y^2-3x=0.
b)Find the co-ordinate of the tangent point of the circles given in the stem.
c) Find the area of the triangle which is formed by the common chord of circles with axes in stem.

6.The end points of diameter of a circles are(-1,3) and (4,2).
a)Find the polar equation of a circle having a radius of 3 units and centered at (0,3).
b)Constructing the equations of circle,determine the length of intercepted part from y-axis by the circle.
c) Determine the equation of acircle which is centered at ($\frac{1}{2}$,-$\frac{1}{2}$) and passes through the center of the aforementioned circle.