# THE CIRCLE (Q 3, PAPER 2)

### LESSON NO. 2: THE HARDER CIRCLE

#### 2005

- 3 (c) The circle *K* has equation  $(x+4)^2 + (y-3)^2 = 36$ .
  - (i) Write down the coordinates of the centre of *K*.
  - (ii) The point (2, 3) is one end-point of a diameter of *K*.Find the coordinates of the other end-point.
  - (iii) The point (-4, y) is on the circle K. Find the two values of y.

## 2004

- 3 (c) K is a circle with centre (-2, 1). It passes through the point (-3, 4).
  (i) Find the equation of K.
  - (ii) The point (t, 2t) is on the circle *K*. Find the two possible values of *t*.

## 2001

- 3 (a) The circle *S* has equation  $(x-3)^2 + (y-4)^2 = 25$ .
  - (i) Write down the centre and the radius of *S*.
  - (ii) The point (k, 0) lies on S. Find the two real values of k.

#### 1999

- 3 (b) The points (-1, -1) and (3, -3) are the end points of a diameter of a circle S.
  (i) Find the coordinates of the centre of S.
  - (ii) Find the radius length of *S*.
  - (iii) Find the equation of *S*.

#### 1997

3 (c) C is the circle with centre (-1, 2) and radius 5. Write down the equation of C. The circle K has equation (x-8)<sup>2</sup> + (y-14)<sup>2</sup> = 100. Prove that the point p(2, 6) is on C and on K. Show that p lies on the line which joins the centres of the two circles.

## 1996

- 3 (b) The points (1, 0) and (4, 4) are the end points of a diameter of a circle *C*.(i) Find the coordinates of the centre of *C*.
  - (ii) Find the radius length of *C*.
  - (iii) Find the equation of *C*.

Answers				
2005	3	(c) (i) (-4, 3)	(ii) (-10, 3)	(iii) $y = -3, 9$
2004	3	(c) (i) $(x+2)^2 + (y-1)^2 = 10$	(ii) $t = \pm 1$	
2001	3	(a) (i) (3, 4), <i>r</i> = 5	(ii) $k = 0, 6$	
1999	3	(b) (i) (1, -2)	(ii) √5	(iii) $(x-1)^2 + (y+2)^2 = 5$
1997	3	(c) $(x+1)^2 + (y-2)^2 = 25$		
1996	3	(b) (i) $(\frac{5}{2}, 2)$	(ii) $\frac{5}{2}$	(iii) $(x - \frac{5}{2})^2 + (y - 2)^2 = \frac{25}{4}$