***NOBLE ONYEBUCHI OFFOR***

***19/ENG03/019***

***CIVIL ENGINEERING***

***NO 188***

***MAT 102***

**Question**

(1) Find the equation of the tangent at the point (1,0) on the circle  x2+ y2 - 5x - y + 4 = 0

(2) (1) Find the equation of the tangent at the point (1,0) on the circle  x2+ y2 - 12x - 12y + 47 = 0

(3) (1) Find the equation of the tangent at the point (1,0) on the circle  x2+ y2 - 8x  + 14y + 40 = 0

**SOLUTIONS;**

1. Given x = 1 and y = 0

2x + 2y(dy/dx) – 5 – (dy/dx) = 0

(2y – 1) dy/dx = 5 – 2x

Dy/dx = 5 – 2x/ 2y – 1

**Substituting the values of x and y to find the value of m**

= 5 – 2(1) / 2(0) – 1

3 /-1 = -3

y-y1 = m(x-x1)

y-0 = -3(x-1)

y = -3x+3 = y+3x-3 = 0

1. Given x = 1 and y = 0

2x + 2y(dy/dx) – 12 – 12(dy/dx) = 0

(2y-12)dy/dx = 12-2x

Dy/dx = 12-2x/2y-12

**Substituting the values of x and y to find m**

= 12-2(1)/2(0)-12

=10/-12 = -5/6

y-y1 = m(x-x1)

y-0 = -5/6 (x-1)

y= -5x+5/6

6y = -5x+5 = 6y+5x-5 = 0

1. Given x=1 and y=0

2x + 2y(dy/dx) – 8 – 14(dy/dx) = 0

(2y-14)dy/dx = 8-2x

Dy/dx = 8-2x/2y-14

**Substituting the values of x and y to find m**

= 8-2(1)/2(0)-14

= 8-2/0-14 = -6/14 = -3/7

y-y1 = m(x-x1)

y-0 = -3/7(x-1)

y = -3x+3/7

7y = -3x+3

7y+3x-3 = 0