NAME: OKWUOKWU BRYAN COURSE: MAT 102

MATRIC NO.: 19/ENG05 1049 DEPARTMENT: Mechatronics

① $x^2 + y^2 + 2x + 6y + 6$

$x^2 + y^2 + 2x + 6y = -6$

$(x^2 + 2x) + (y^2 + 6y) = -6$ (Completing the square of each factor)

$(x^2 + 2x + 1) + (y^2 + 6y + 9) = -6 + 1 + 9$

$(x+1)^2 + (y+3)^2 = 4$

Compare to equation; $(x-h)^2 + (y-k)^2 = r^2$

where; (h,k) is the centre and r = radius

$\therefore (h,k) = (-1,-3)$

$r = \sqrt{4} = 2$

$\therefore$ Centre $= (-1,-3)$ radius $=$ 2 units

② $x^2 + y^2 - 4x + 10y - 8 = 0$

$(x^2 - 4x) + (y^2 + 10y) = 8$

$(x^2 - 4x + 4) + (y^2 + 10y + 25) = 8 + 4 + 25$

$(x-2)^2 + (y+5)^2 = 37$

$\therefore (h,k) = (2,-5)$ $r = \sqrt{37} = 6.0828$

$\therefore$ centre $= (2,-5)$ radius $= 6.0828$ units