18 Quiz 18 MAT 1275 Professor Chiu

Name: _____

- This quiz consists of **2** questions, each worth 5 points for a total of **10** points.
- You have **15** minutes to complete the quiz.
- Show all work and justify your answers.
- Scientific calculators are allowed.
- Wishing you success.

$(x-a)^2+(y-b)^2=r^2$

center (a,b) r: radius

1. Find the center and radius of the circle $x^2+4x+y^2-4y=1$.

x^2+4x+C

$(x-a)^2=x^2-2ax+a^2$

$-2a=4 \Rightarrow a=-2$

$C=a^2=(-2)^2=4$

y^2-4y+C

$(y-b)^2$ $y^2-2by+b^2$

$-2b=-4 \Rightarrow b=2$

$c=b^2=(2)^2=4$

$x^2+4x+4+y^2-4y+4=1+4+4$

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

center $(-2,2)$

radius $=\sqrt{9}=3$

Please turn over.

2. Find the vertex, label two additional points, and sketch the graph of $(y+2) = (x-3)^2$.

Vertex $(x, y) = (3, -2)$

$y = -2$ $x = 3$

x	y	
0	7	(0, 7)
1	2	(1, 2)
2	−1	(2, −1)
3	−2	(3, −2)
4	−1	(4, −1)
5	2	(5, 2)

$y+2 = (0-3)^2 \Rightarrow y+2 = 9 \Rightarrow y = 7$

$y+2 = (1-3)^2 \Rightarrow y+2 = 4 \Rightarrow y = 2$

$y+2 = (2-3)^2 \Rightarrow y+2 = 1 \Rightarrow y = -1$

$y+2 = (3-3)^2 \Rightarrow y+2 = 0 \Rightarrow y = -2$

$y+2 = (4-3)^2 \Rightarrow y+2 = 1 \Rightarrow y = -1$

$y+2 = (5-3)^2$

$\Rightarrow y+2 = 4$

$\Rightarrow y = 2$