Lab quiz 13

1. The polar form of the ewuation $x^2 + y^2 + 2x + 6y = 0$ is:

   (A) $r = \sqrt{10}$

   (B) $r = 3sec\theta + 6tan\theta$

   (C) $r = -2sin\theta - 6cos\theta$

   (D) $r = -2cos\theta - 6sin\theta$

   (E) $r = -2cos\theta + 6sin\theta$

2. For the parametric curve: $x(t) = 3 + 2cos(t), y(t) = 1 + 4sin(t), t \in [0, 2\pi)$. Give an equation in x and y that represents this curve.

(A) $\frac{x^2}{4} + \frac{y^2}{16} = 1$

(B) $\frac{(x-3)^2}{4} + \frac{(y-1)^2}{16} = 1$

(C) $\frac{(x+3)^2}{16} + \frac{(y+1)^2}{4} = 1$

(D) $\frac{(x+3)^2}{4} + \frac{(y+1)^2}{16} = 1$

(E) $\frac{(x-2)^2}{16} + \frac{(y-4)^2}{4} = 1$

3. For the parametric curve: $x(t) = 3 + 2cos(t), y(t) = 1 + 4sin(t), t \in [0, 2\pi)$. state the points (x,y) where tangent line are horizontal.

(A) (3,5), (3,1)

(B) (5,5) , (5,1)

(C) (3,5), (3,-3)

(D) (5,1), (1,1)

(E) (4,1), (1,1)

4. For the parametric curve: $x(t) = 3 + 2cos(t), y(t) = 1 + 4sin(t), t \in [0, 2\pi)$. state the points (x,y) where tangent line are vertical.

   (A) (3,5), (3,1)

   (B) (5,5) , (5,1)

   (C) (3,5), (3,-3)

   (D) (5,1), (1,1)

   (E) (4,1), (1,1)

5. The equation of the tangent line to the curve defined by $F(t) = (t^2 + 1, 2^t)$ at the point $y = 4$ is:

   (A) $y - 4 = 4ln(2)(x - 5)$

   (B) $y - 4 = 4ln(2)(x - 2)$

   (C) $y - 4 = ln(2)(x - 2)$

   (D) $y - 4 = 4(x - 5)$

   (E) $y - 4 = ln(2)(x - 5)$