

Calculus IV Quiz 3 Fall 1999 11/1/99

$$x(t) = x_0 + (x_1 - x_0)t$$

1. Give parametric equations $x(t)$, $y(t)$, and bounds for t that produce a path from $(2,-1)$ to $(-2,4)$.

$$x(t) = 2 + (-2 - (2))t = 2 - 4t$$

$$y(t) = -1 + (4 - (-1))t = -1 + 5t$$

$$x(t) = 2 - 4t$$

$$y(t) = -1 + 5t$$

$$0 \leq t \leq 1$$

2. Give parametric equations $x(t)$, $y(t)$, and bounds for t that produce the lower half of a circle (centered at the origin) of radius 5 traversed counterclockwise.

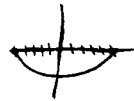
$$\underline{x(t) = 5 \cos t}$$

$$\underline{y(t) = 5 \sin t}$$

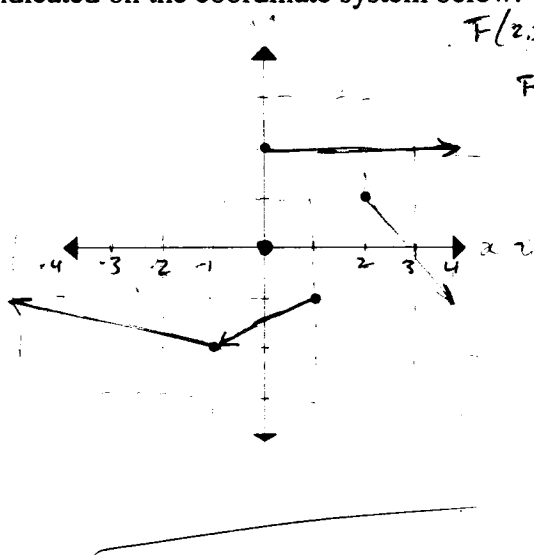
$$\underline{\pi \leq t \leq 2\pi}$$

$$\textcircled{a} \pi \quad x = -5 \quad y = 0$$

$$\textcircled{b} 2\pi \quad x = 5 \quad y = 0$$



3. Plot the vector field $F(x,y) = 2yi - xj$ for the points $(0,0)$, $(2,1)$, $(0,2)$, $(1,-1)$, and $(-1,-2)$ indicated on the coordinate system below.



$$F(2,1) = 2i - 2j$$

$$F(0,2) = 4i$$

$$F(1,-1) = -2i - j$$

$$F(-1,-2) = -4i - 2j$$