10.1 #8

Circle of radius 5 centered at $(1,-2)$ is

$$(x-1)^2+(y+2)^2=25$$

or $$\left(\frac{x-1}{5}\right)^2+\left(\frac{y+2}{5}\right)^2=1$$

Since $\cos^2 t+\sin^2 t=1$, we have

$$\frac{x-1}{5}=\cos t \implies x=5\cos t+1 \quad \text{and}$$

$$\frac{y+2}{5}=\sin t \implies y=5\sin t-2.$$

Check orientation: $t=0 \implies (x,y)=(6,-2)$
$t=\frac{\pi}{2} \implies (x,y)=(1,3)$ } Counterclockwise

[Note: To get a clockwise orientation we could replace t with $-t$.]

So $$\begin{cases} x=5\cos t+1 \\ y=5\sin t-2 \end{cases} \qquad 0\le t\le 2\pi$$

this gives us one revolution around the circle.