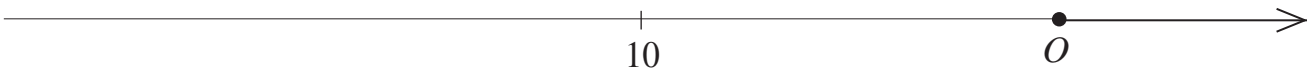
Quiz **Name**

1a. Consider the general equiangular spiral $r = f(\theta) = f(0)e^{\tan(\alpha-\frac{\pi}{2})\theta}$. What values for $f(0)$ and α tell us that the function $f(\theta) = e^{\theta}$ is an equiangular spiral?

1b. Use the estimates $e^{\frac{\pi}{2}} \approx 4.81$ and $e^{\pi} \approx 23.14$ to sketch the graph of the spiral $f(\theta) = e^{\theta}$ from $\theta = 0$ to $\theta = \pi$ in the coordinate plane below.



2. Compute the length of the spiral that you have drawn as well as the area enclosed by that part of the spiral and the lines $\theta = 0$ and $\theta = \pi$. [By all means leave e and π in your final answers.]