

Math 113

Quiz #1

1. Find the polar coordinate representation of the function $f(x) = x^2$ with domain $x \geq 0$.

$$r \sin \theta = r^2 \cos^2 \theta$$
$$\Rightarrow r(\theta) = \tan(\theta) \sec(\theta)$$

2. Parametrize the curve $f(x) = x^2$ in terms of the polar angle θ if $x \geq 0$.

$$x(\theta) = r(\theta) \cos(\theta)$$
$$= \tan(\theta)$$
$$y(\theta) = r(\theta) \sin(\theta)$$
$$\Rightarrow y(\theta) = \tan^2(\theta)$$