Quiz **Name**

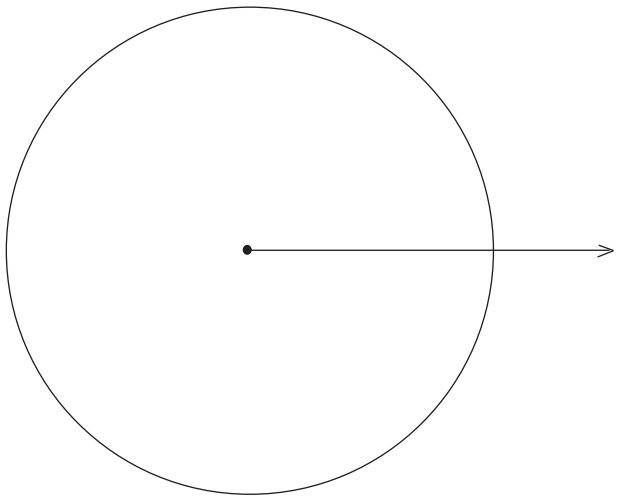
1. Consider a polar and xy-coordinate system simultaneously. The graph of the polar function $r = f(\theta) = \frac{3}{1+\frac{1}{2}\cos\theta}$ is an ellipse. The Cartesian coordinates of the two focal points are

_____ and _____, and its polar coordinates are _____ and

_____ . A Cartesian equation of the ellipse is _____

and the area of the ellipse is _____ .

2. The figure below shows a polar coordinate system and the circle $r = 2\pi$. Consider the polar function $r = f(\theta) = \theta$ for $0 \leq \theta \leq 2\pi$.



i. The graph of $r = f(\theta)$ lies inside the circle. Plot six different points of the spiral and then sketch it carefully into the space provided.

ii. Compute the area between the spiral and the circle.