Quiz 5

Name: _____

A *polar rectangle* is the region bounded by two concentric circular arcs and two rays through the center of those arcs. See the picture:

(i) Write a formula for the *area* of this polar rectangle. (Your answer will involve x, y, and θ. Let θ be measured in radians.)

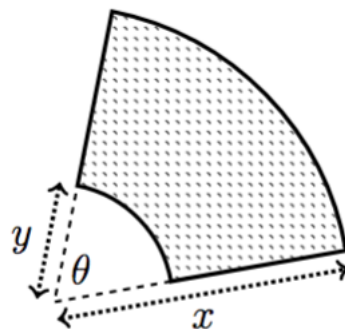$$\text{Area} = \frac{1}{2}\theta x^2 - \frac{1}{2}\theta y^2$$

Figure 1: A polar rectangle

(ii) Write a formula for the *perimeter* of this polar rectangle. (Your answer will involve x, y, and θ. Let θ be measured in radians.)

$$\text{Perimeter} = \theta y + \theta x + 2(x-y)$$