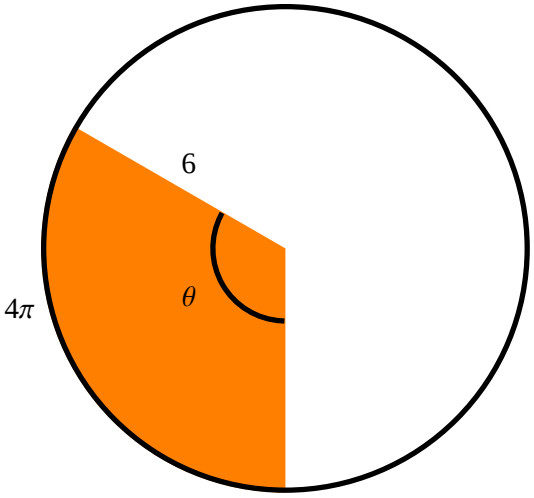
Math 1613 - Trigonometry

Quiz #5 - 2010.09.30

Solutions

Using the formulas $A = \frac{1}{2}r^2\theta$ and $s = r\theta$, find the area of the shaded region given in the figure below.



First, note that $s = 4\pi$ and $r = 6$, and we need to find A. We therefore have to find *theta* first using the formula $s = r\theta$:

$$4\pi = 6\theta \longrightarrow \theta = \frac{2}{3}\pi$$

Next, we can use $A = \frac{1}{2}r^2\theta$ with $r = 6$ and $\theta = \frac{2}{3}\pi$ to get

$$A = \frac{1}{2}6^2\frac{2}{3}\pi \longrightarrow A = 12\pi$$