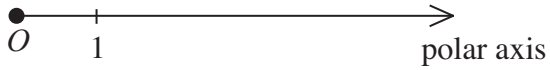
Quiz **Name**

1. The figure below shows a polar coordinate system. Place the points that have polar coordinates $(5, -\frac{5\pi}{6})$ and $(-4, \frac{\pi}{4})$ carefully into the plane of the coordinate system.



2. A sphere with radius 5 centimeters and mass 10 kilograms has fallen from rest from an unspecified (but considerable) height. The fact that its fall is slowed by air resistance implies that it has a terminal speed. Compute this terminal speed (using equalities below).

Equalities: air density = 1.225 kg/m^3 (in MKS) gravitational constant = 9.81 m/sec^2 (in MKS)

$s_\infty = \sqrt{\frac{4mg}{\rho A}}$ $\quad s(t) = |v(t)| = \frac{s_\infty(e^{\frac{2g}{s_\infty}t}-1)}{e^{\frac{2g}{s_\infty}t}+1}$ $\quad c(t) = e^{\frac{2g}{s_\infty}t}$ $\quad y(t) = s_\infty t - \frac{2s_\infty}{a}\ln(e^{at}+1) + C$