

6, 3, 0.5

9.1 #48

documentation?

$$r \sin\left(\frac{2\pi}{3} - \theta\right) = 5$$

We know that  $\sin(A-B) = \sin A \cos B - \cos A \sin B$  ✓

\* Hass, Weir, Thomas. University Calculus. p. AP-20.  
Therefore  $r \left(\sin\frac{2\pi}{3} \cos \theta - \cos\frac{2\pi}{3} \sin \theta\right) = 5$

$$r \left(\frac{\sqrt{3}}{2} \cos \theta - \left(-\frac{1}{2}\right) \sin \theta\right) = 5$$

$$\frac{\sqrt{3}}{2} r \cos \theta + \frac{1}{2} r \sin \theta = 5 \quad ✓$$

$$x = r \cos \theta \quad \text{and} \quad y = r \sin \theta$$

\* Hass, Weir, Thomas. University Calculus. p. 580.

Using substitution we get:

$$\frac{\sqrt{3}}{2} x + \frac{1}{2} y = 5 \quad \text{and then we solve for } y.$$

$$\frac{1}{2} y = 5 - \frac{\sqrt{3}}{2} x$$

$$\boxed{y = 10 - \sqrt{3} x}$$

The graph is linear with a slope of  $-\sqrt{3}$  and a y-intercept of 10.

Very Good.