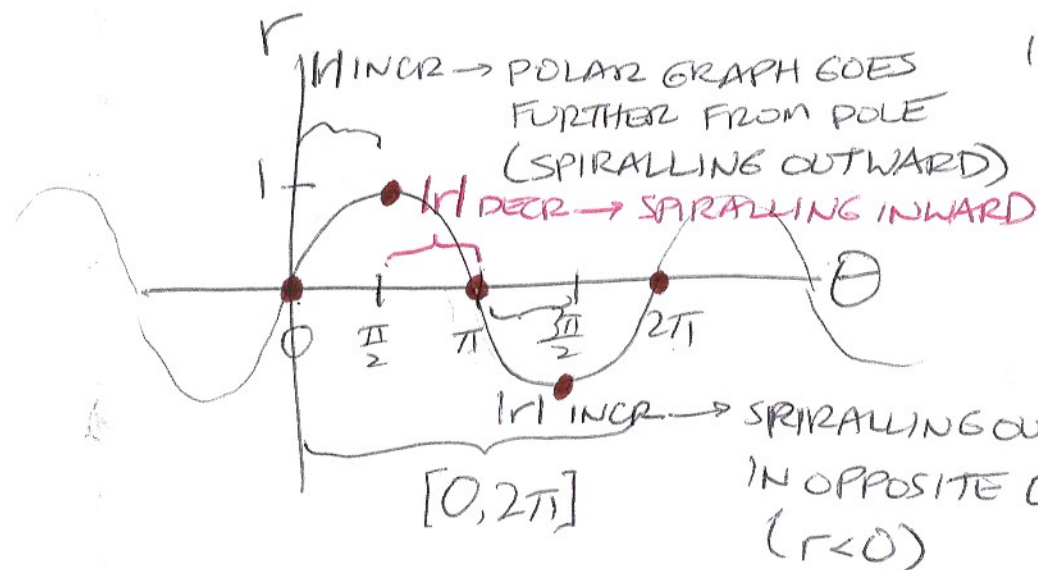


GRAPH $r = \sin \theta$



IDENTIFY θ

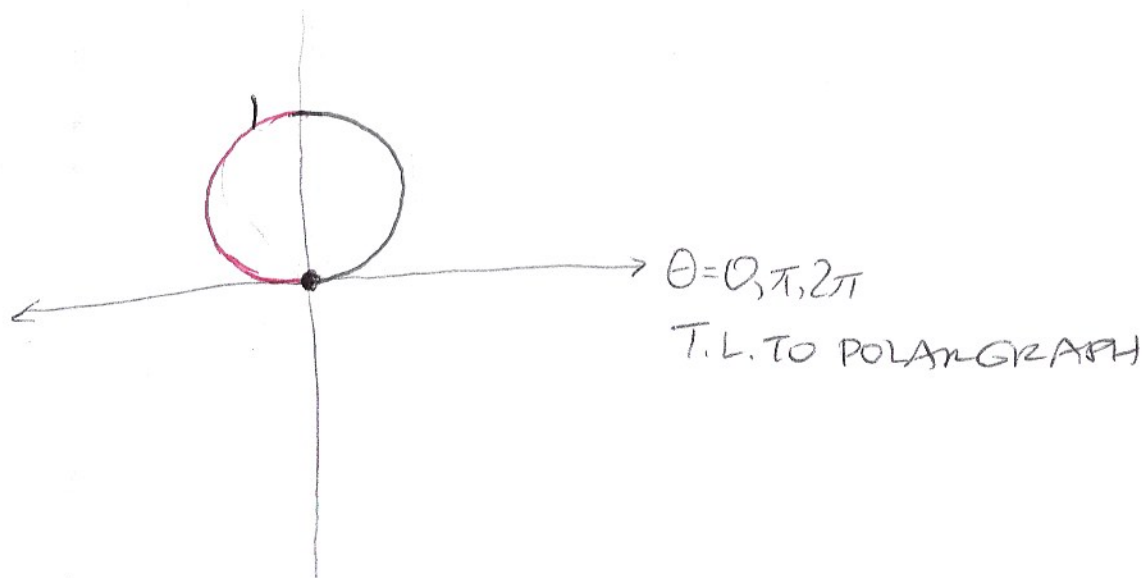
FOR $r=0$, LOCAL MAX/MIN OF r



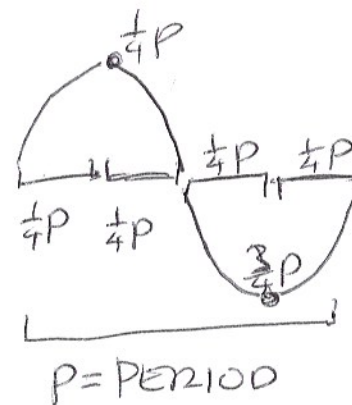
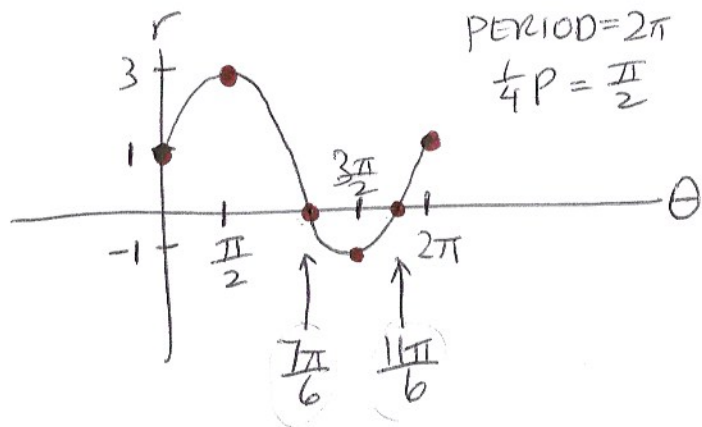
θ GIVES RISE

TO A T.L.

IN OPPOSITE QUADRANT ($r < 0$)



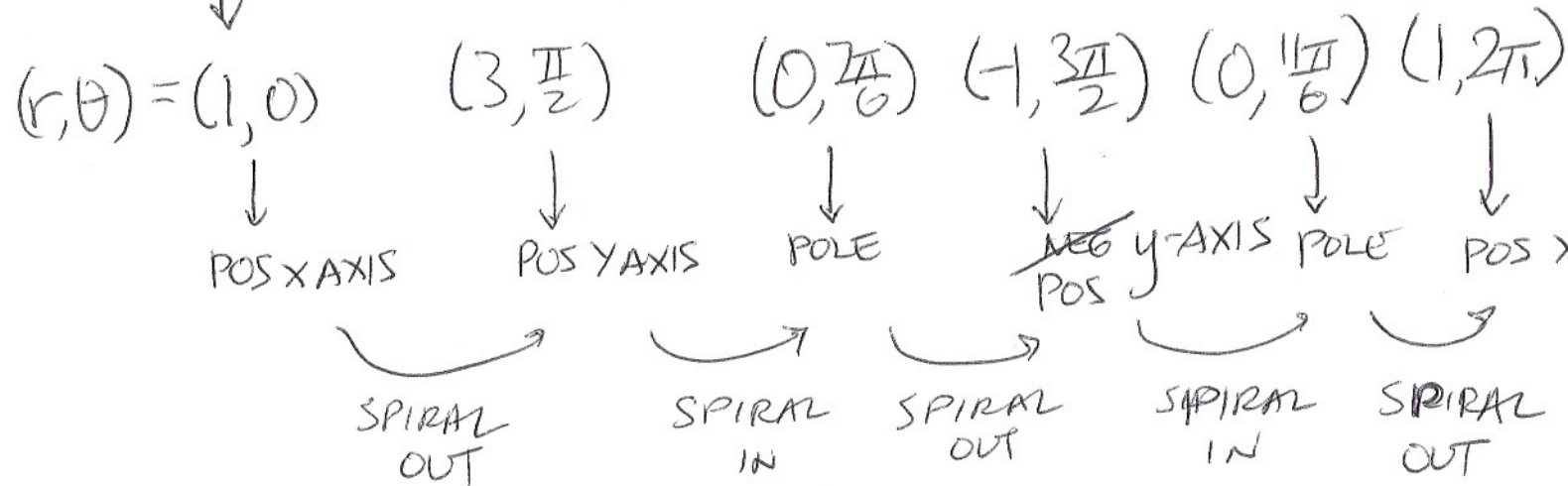
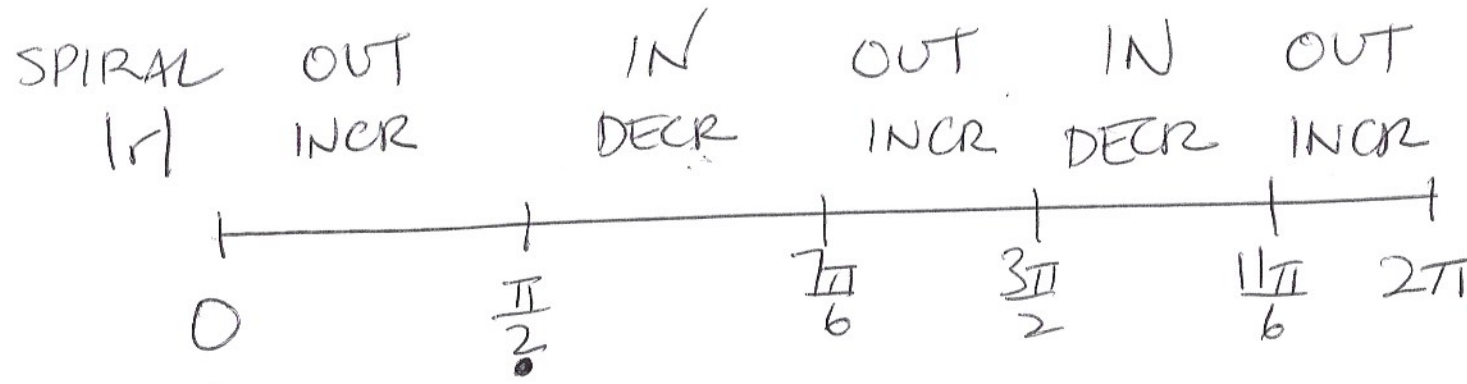
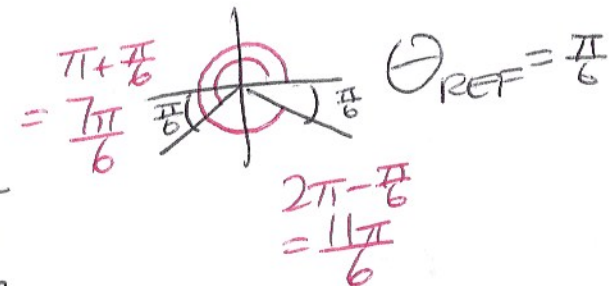
SKETCH $r = 1 + 2\sin\theta$



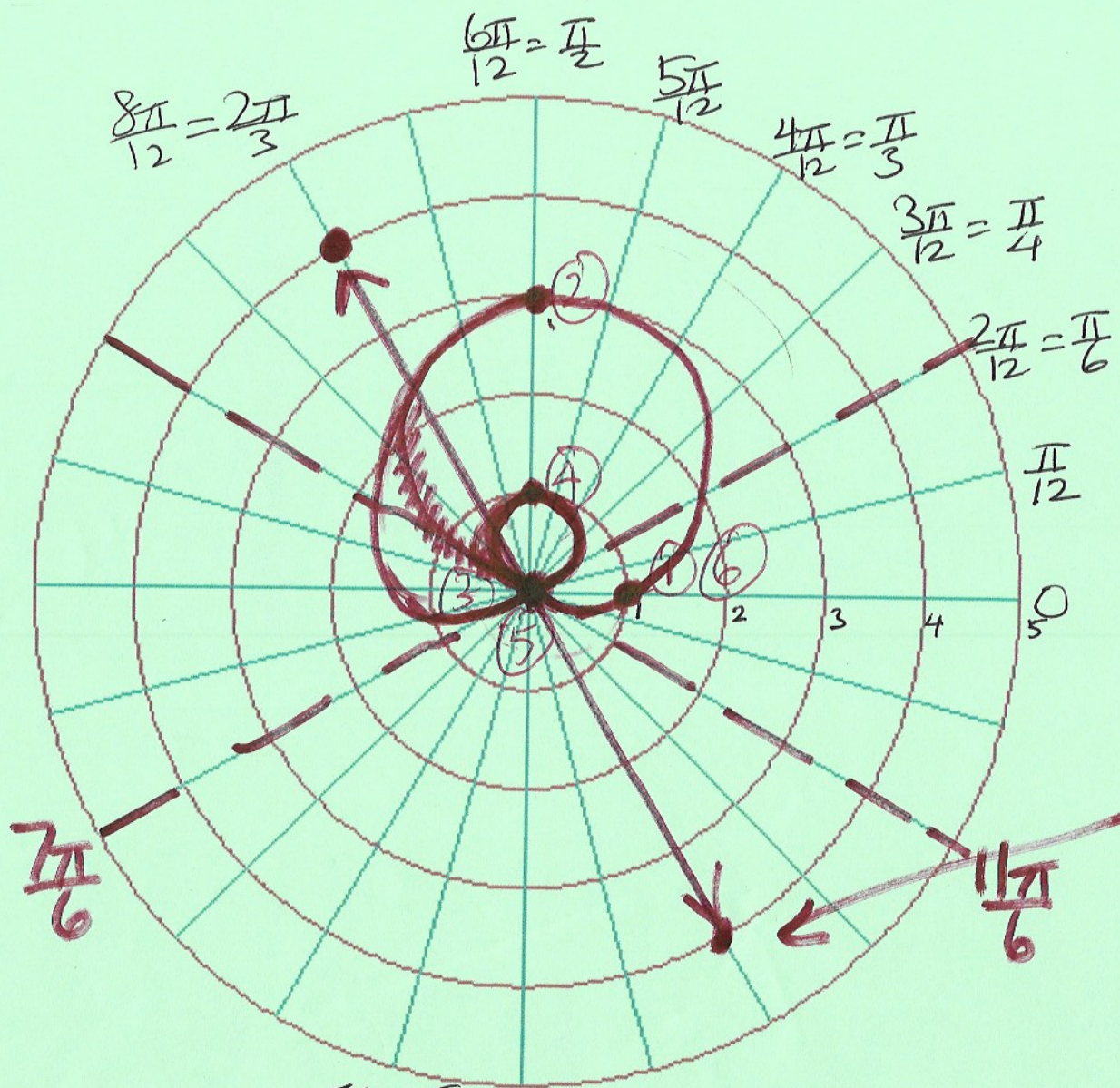
$$1 + 2\sin\theta = 0$$

$$\sin\theta = -\frac{1}{2}$$

$$\theta \in [0, 2\pi]$$



SEE POLAR
GRAPHING 3
HANDBOUT



Plot $(4, \frac{2\pi}{3})$

A/K/A

$$(4, \frac{2\pi}{3} + 2n\pi)$$

$$n \in \mathbb{Z}$$

$$x = 4 \cos \frac{2\pi}{3}$$

$$y = 4 \sin \frac{2\pi}{3}$$

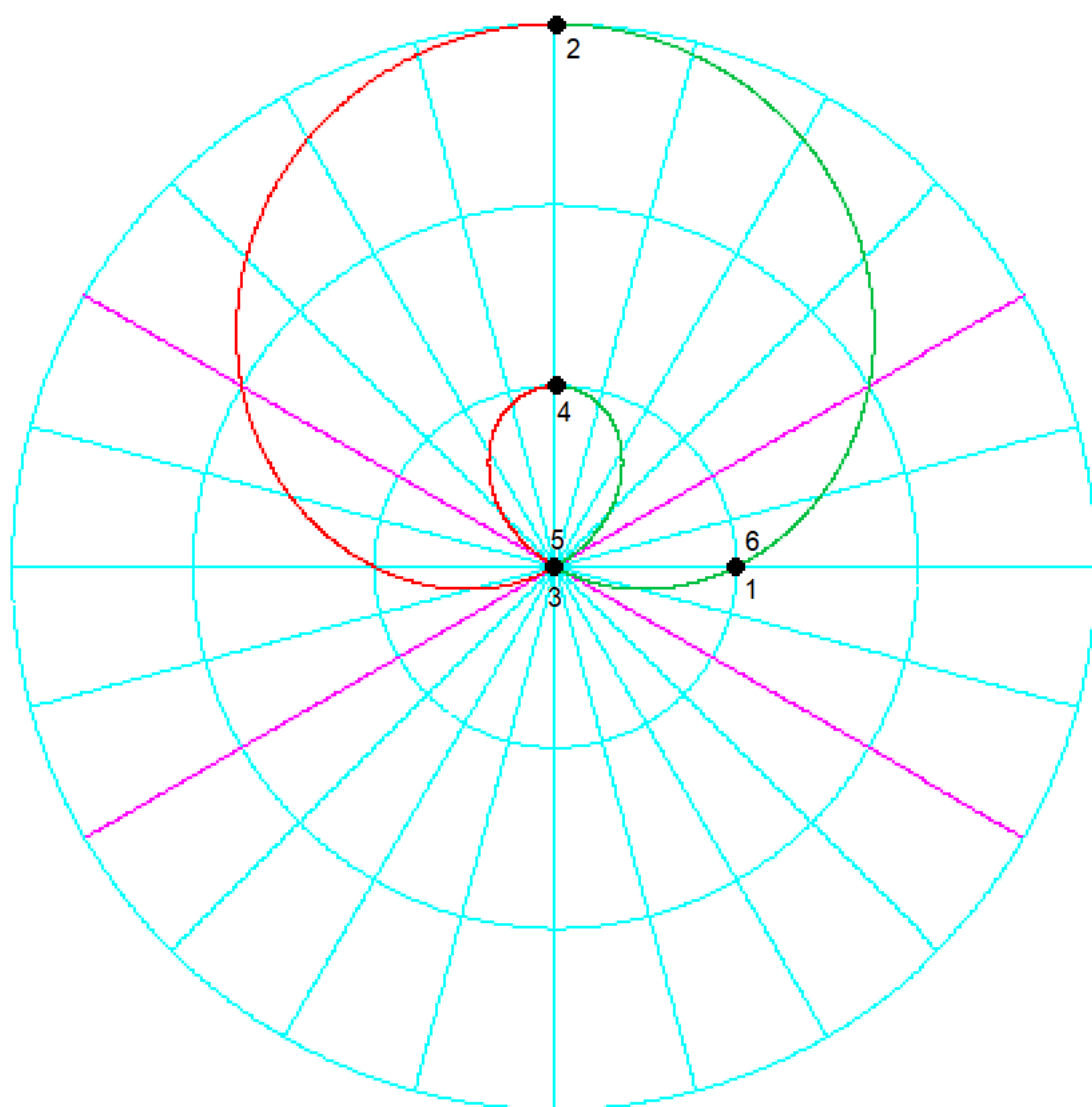
WHAT IS

$$(-4, \frac{2\pi}{3})?$$

$$x = -4 \cos \frac{2\pi}{3}$$

$$y = -4 \sin \frac{2\pi}{3}$$

$(-r, \theta)$ IS THE SAME POINT AS $(r, \theta + \pi)$
 (r, θ) IS THE SAME POINT AS $(-r, \theta + \pi)$



$$r = a \pm b \cos \theta \quad \text{or} \quad r = a \pm b \sin \theta$$

$(b > 0)$

SEE POLAR GRAPHING 2 HANDOUT