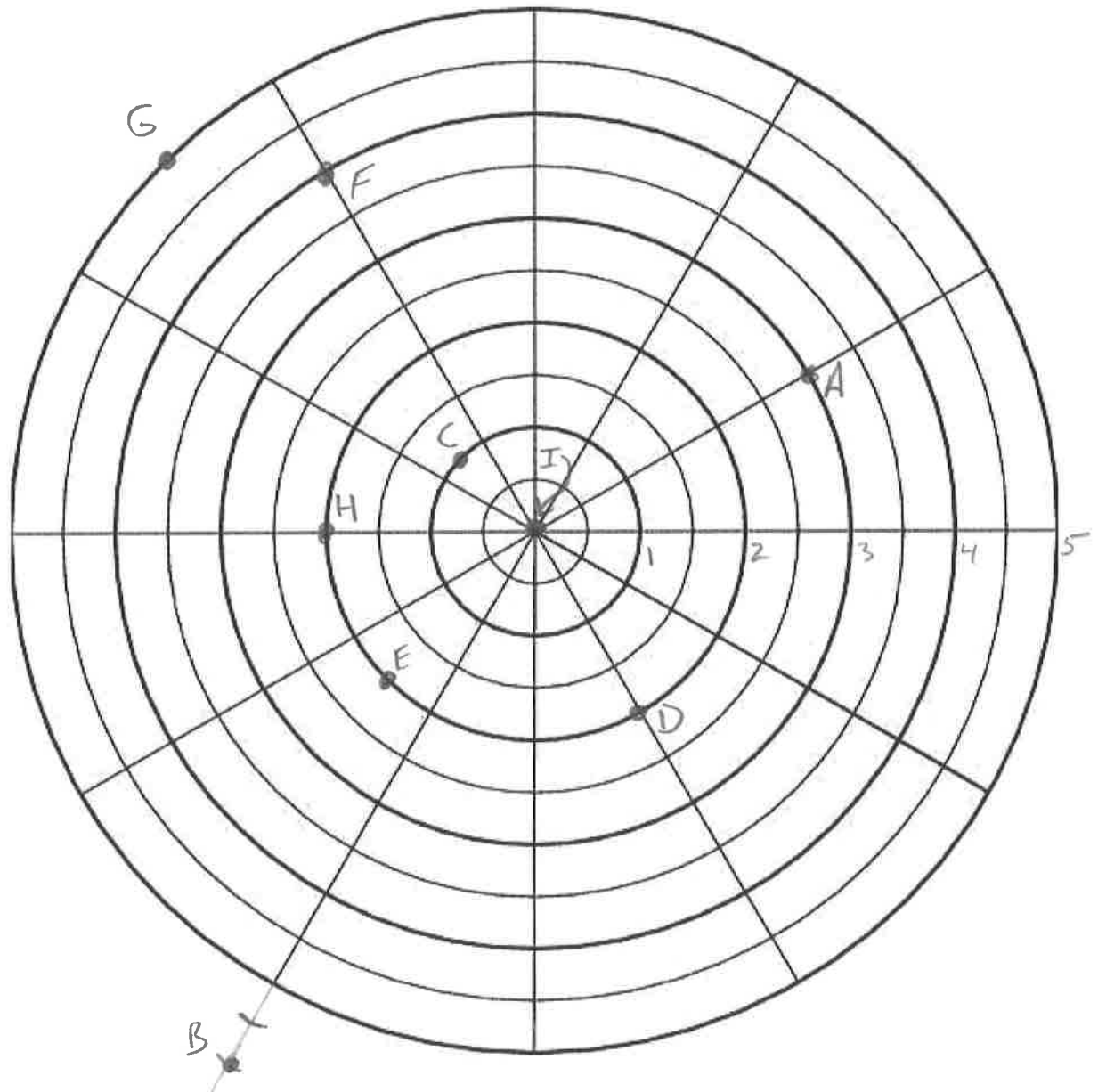


Intro to Polar Coordinates

Instructions: Graph each point on the polar graph.
Graph and label each point on the graph.

1. $A(3, 30^\circ)$ $B(6, 240^\circ)$ $C(1, 135^\circ)$ $D(2, -60^\circ)$
 $E(-2, 45^\circ)$ $F(-4, 300^\circ)$ $G(-5, -45^\circ)$ $H(-2, 0^\circ)$ $I(0, -270^\circ)$



2. Given points S and T on the polar graph below:

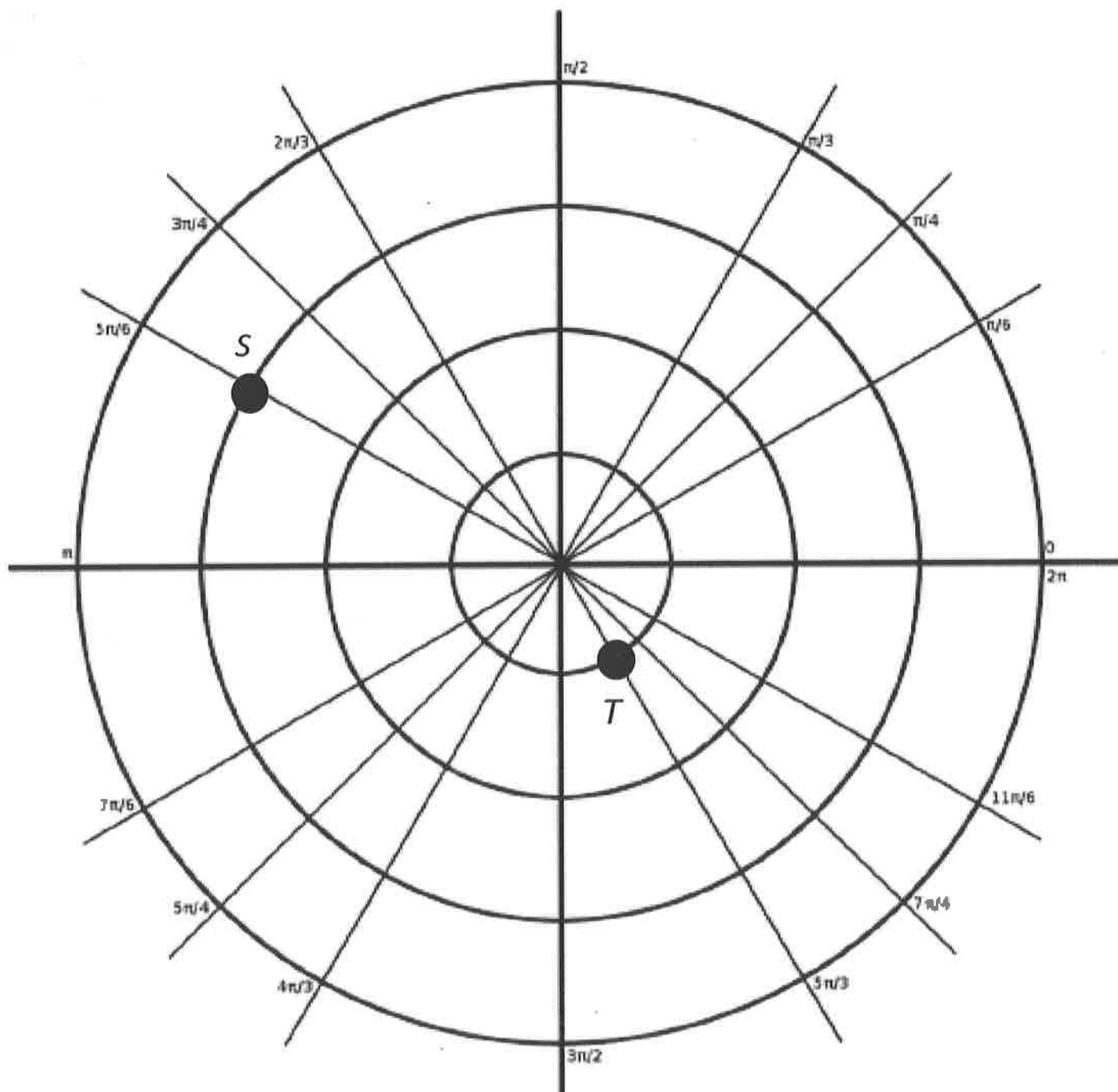
A.) Write all four possibilities of polar coordinates for each point.

$$\begin{array}{ll} \text{S} & \text{T} \\ \hline (3, \frac{5\pi}{6}) & (1, \frac{5\pi}{3}) \\ (-3, \frac{11\pi}{6}) & (-1, \frac{2\pi}{3}) \\ (3, -\frac{7\pi}{6}) & (1, -\frac{\pi}{3}) \\ (-3, -\frac{\pi}{6}) & (-1, -\frac{4\pi}{3}) \end{array}$$

B.) Find the rectangular coordinates for each point.

$$S: \left(-\frac{3\sqrt{3}}{2}, \frac{3}{2} \right)$$

$$T: \left(\frac{1}{2}, -\frac{\sqrt{3}}{2} \right)$$



State three other pairs of polar coordinates for each point where $-360^\circ < \theta < 360^\circ$.

3. $(-2, 150^\circ)$

$(-2, -210^\circ)$

$(2, 330^\circ)$

$(2, -30^\circ)$

4. $(5, -60^\circ)$

$(5, 300^\circ)$

$(-5, 120^\circ)$

$(-5, -240^\circ)$

State three other pairs of polar coordinates for each point where $-2\pi < \theta < 2\pi$.

5. $(4, \frac{\pi}{5})$

$(4, -\frac{9\pi}{5})$ $(-4, -\frac{4\pi}{5})$

$(-4, \frac{6\pi}{5})$

6. $(-3, \frac{2\pi}{3})$

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

$(3, \frac{5\pi}{3})$ $(3, -\frac{\pi}{3})$

A point in polar coordinates is given. Convert the point to rectangular coordinates. Show work.

7. $(3, \frac{\pi}{2})$

$(0, 3)$

8. $(-1, \frac{5\pi}{4})$

$(\frac{\sqrt{2}}{2}, \frac{\sqrt{2}}{2})$

9. $(2, \frac{7\pi}{6})$

$(-\sqrt{3}, -1)$

10. $(-2.5, 1.1)$

$(-1.13, -2.23)$

A point in rectangular coordinates is given. Convert the point to polar coordinates. Show work.

11. $(-3, -3)$

$(3\sqrt{2}, 225^\circ)$

12. $(-6, 0)$

$(6, 180^\circ)$

13. $(4, -4\sqrt{3})$

$(8, 120^\circ)$

14. $(-3, 4)$

$(5, 126.87^\circ)$