

1. The following points are in rectangular coordinate, change them to polar coordinate. Use exact value whenever possible.

- a. $(0, 1)$
- b. $(3, 3)$
- c. $(-\sqrt{3}, 1)$
- d. $(0, -1)$
- e. $(-1, -\sqrt{3})$
- f. $(-2, -3)$
- g. $(2, -5)$
- h. $(4, -1)$

2. The following points are in polar coordinate, change them to rectangular coordinate. Use exact value whenever possible.

- a. $(1, 0)$
- b. $(-1, 0)$
- c. $\left(2, \frac{2\pi}{3}\right)$
- d. $\left(-3, -\frac{5\pi}{6}\right)$
- e. $\left(-1, \frac{9\pi}{4}\right)$
- f. $\left(1, -\frac{\pi}{2}\right)$
- g. $(-1, 1)$
- h. $(-4, -2)$

3. Describe the curve given by the following polar equation:

- a. $r = 10$
- b. $\theta = -\frac{\pi}{3}$
- c. $r = 2\theta, 0 \leq \theta < \infty$
- d. $r = 10 \sin \theta$
- e. $r = 8 \cos \theta$
- f. $r = -2 \sin \theta$