

Name: _____

Polar Coordinates

1) Replace the polar equations by their equivalent Cartesian equations:

1) $r \cos \theta = 2$

2) $r \sin \theta = 4$

3) $r \sin \theta = 0$

4) $r \cos \theta + r \sin \theta = 1$

5) $r^2 = 1$

6) $r \sin \theta = e^{\cos \theta}$

7) $r = \frac{5}{\sin \theta - 2 \cos \theta}$

8) $r = 4 \tan \theta \sec \theta$

9) $r = 4 \cos \theta$

10) $r = -2 \cos \theta$

11) $r = \sin 2\theta$

12) $r^2 = 8 \cos 2\theta$

13) $r = 8(1 - 2 \cos \theta)$

14) $r = 4(1 - \cos \theta)$

15) $r(3 - 6 \cos \theta) = 12$

2) Replace the Cartesian equations by their equivalent polar form:

1) $x = 7$

2) $x = y$

3) $x^2 + y^2 = 4$

4) $\frac{x^2}{9} + \frac{y^2}{4} = 1$

5) $y^2 = 4x$

3) Convert a point (0,-5) in rectangular coordinate to a point polar coordinate

4) Convert a point $\left(2, \frac{7\pi}{6}\right)$ in polar coordinate to a point rectangle coordinate

5) Convert the rectangular equation $2xy = 1$ to polar form

6) Convert $r = \frac{6}{2 \cos \theta - 3 \sin \theta}$ to rectangular form

7) Convert (-2,2) to polar coordinates with r positive and θ between 0° & 360° .

- 8) Convert $(-\sqrt{2}, 135^\circ)$ to rectangular coordinates
- 9) Convert the polar equation into rectangular form : $r^2 = 3\sin 2\theta$
- 10) Convert the rectangular equation into polar form :
 $(x^2 + y^2)^2 = 2x^2 + \log(10)y^2$
- 11) Write $4x + 3y = 2x^2 + 2y^2$ in Polar coordinates.
- 12) Change $r^2 = 4\sin 2\theta$ into rectangular form
- 13) Write $5r^2 = 7\cos^2 \theta + 4\cos 2\theta + 7\sin^2 \theta - 7$ with rectangular coordinates