

Name: _____

Polar Coordinates

Exercise 1: Convert the rectangular coordinates into polar coordinates.

1) $(1,4)$

2) $(5,0)$

3) $(-6,-8)$

4) $(2.3,5.2)$

5) $(-2,\sqrt{2})$

6) $(5\sqrt{2},\frac{1}{2})$

7) $(\frac{1}{2},4\sqrt{2})$

8) $(-3,-9)$

9) $(-5,4)$

10) $(-3,4)$

11) $(-6,0)$

12) $(0,11)$

Exercise 2: Convert the polar coordinates into rectangular coordinates

1) $(2,\frac{\pi}{2})$

2) $(6,\frac{3\pi}{4})$

3) $(4,\frac{5\pi}{7})$

4) $(1,\frac{3\pi}{4})$

5) $(3,-\frac{\pi}{2})$

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

7) $(7,-\frac{3\pi}{11})$

8) $(7,\frac{\pi}{3})$

9) $(8,\frac{\pi}{6})$

10) $(9,\frac{\pi}{3})$

Exercise 3: Convert the rectangular equations to polar form

1) $x + 4y = 1$

2) $x^2 + 9y = 0$

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

4) $x^2 + 3y^2 + 5xy = 4$

5) $4x = -13y^2$

6) $x^2 + \sqrt{y} = 5$

7) $x^2 + y^2 = 14$

8) $x + y + 7xy = 11$

Exercise 4: Convert the polar equations to rectangular form:

1) $r^2 = 4$

2) $5r^2 = 3r \cos \theta + 7$

3) $4r^2 = 7r \sin \theta + 3r \cos \theta$

4) $r^2 - 8r \sin \theta = -9r \cos \theta$

5) $r^2 = -3r \sin \theta + 3r \cos \theta$

6) $r = \sin \theta + \cos \theta$

7) $r \cos \theta = 8$

8) $\sqrt{2}r \cos \theta = \frac{1}{2}$