

Quiz Review

Plot Point and give 3 additional polar representations of the point on $-\pi < \theta < 2\pi$

- ① $(-3, -7\pi/6)$ ② $(1, 7\pi/4)$
③ $(-2, 2\pi/3)$

Given Polar Coordinates Convert to rectangular.

- ④ $(-2, 7\pi/6)$ ⑤ $(8.25, 30^\circ)$

Given Rectangular Coordinates convert to Polar.

- ⑥ $(-3, -3)$ ⑦ $(0, -5)$ ⑧ $(3, -1)$

Convert equation to Polar.

- ⑨ $x^2 + y^2 = 36$ ⑩ $x = 5$

Convert Equation to Rectangular

- ⑪ $r = 6 \cos \theta$ ⑫ $r = 5$

Graph by hand $r = 5 \sin \theta$



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Quiz Review Sections 10.6-10.7

① $(-3, -7\pi/6)$

Pt 1

$(-3, -7\pi/6 + 2\pi) \rightarrow (-3, 5\pi/6)$

Pt 2

$(3, -2\pi/6 + \pi) \rightarrow (3, -\pi/6)$

Pt 3

$(3, -\pi/6 + 2\pi) \rightarrow (3, 11\pi/6)$

② $(1, 7\pi/4)$

Pt 1

$(1, 7\pi/4 - 2\pi) \rightarrow (1, -\pi/4)$

Pt 2

$(-1, 2\pi/4 + \pi) \rightarrow (-1, 3/4\pi)$

Pt 3

$(-1, 3/4\pi - 2\pi) \rightarrow (-1, -5\pi/4)$

③ $(-2, 2\pi/3)$

Pt 1

$(-2, 2\pi/3 - 2\pi) \rightarrow (-2, -4\pi/3)$

Pt 2

$(2, 2\pi/3 + \pi) \rightarrow (2, 5/3\pi)$

Pt 3

$(2, 2\pi/3 + \pi) = (2, -\pi/3)$

④ $(-2, 7\pi/6)$

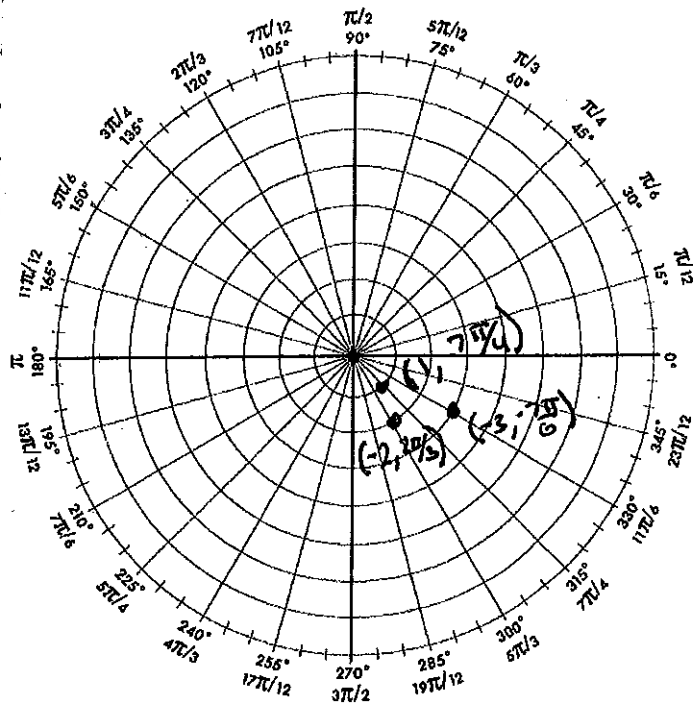
$x = r \cos \theta \quad y = r \sin \theta$

$x = -2 \cos(7\pi/6) \quad y = -2 \sin(7\pi/6)$

$= -2 \left(\frac{\sqrt{3}}{-2}\right) \quad = -2 \left(\frac{1}{-2}\right)$

$= \sqrt{3} \quad = 1$

$(\sqrt{3}, 1)$



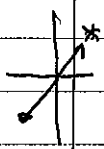
⑤ $(8.25, 30^\circ)$

$x = 8.25 \cos \theta \quad y = 8.25 \sin \theta$

$x \approx 7.1447 \quad y = 4.125$

$(7.1447, 4.125)$

6) (-3, -3)



$$r = \sqrt{(x)^2 + (y)^2}$$

$$\theta = \tan^{-1} \frac{y}{x}$$

$$\theta = \tan^{-1} \frac{-3}{-3}$$

$$\theta = \tan^{-1} 1$$

$$r = \sqrt{(-3)^2 + (-3)^2}$$

$$r = \sqrt{18}$$

$$r = 3\sqrt{2} \text{ or } 4.2426$$

$$\theta = \frac{\pi}{4} \text{ add } \pi$$

$$\theta = \frac{5\pi}{4}$$

$$(\sqrt{18}, \frac{5\pi}{4})$$

9) $x^2 + y^2 = 36$

$$* r^2 = x^2 + y^2$$

$$r^2 = 36$$

$$r = 6$$

10) $x = 5$

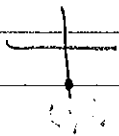
$$* x = r \cos \theta$$

$$r \cos \theta = 5$$

$$r = \frac{5}{\cos \theta} \quad \frac{1}{\cos \theta} = \sec \theta$$

$$r = 5 \sec \theta$$

7) (0, -5)



$$r = \sqrt{(0)^2 + (-5)^2}$$

$$r = 5$$

$$\theta = \tan^{-1} \left(\frac{-5}{0} \right)$$

undefined

$$\theta = \frac{3\pi}{2}$$

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

11) $r = 6 \cos \theta$

$$r^2 = 6r \cos \theta$$

$$x^2 + y^2 = 6x$$

$$x^2 - 6x + y^2 = 0$$

$$(x-3)^2 + y^2 = 9$$

8) (3, -1)

$$r = \sqrt{(3)^2 + (-1)^2}$$

$$r = \sqrt{10}$$

$$\theta = \tan^{-1} \frac{-1}{3}$$

$$\theta = -.321750554$$

$$(\sqrt{10}, -.32175)$$

12) $r = 5$

$$r^2 = 25$$

$$x^2 + y^2 = 25$$

13 $r = S - S \sin \theta$

θ	r
0	5
$\pi/12$	3.71
$\pi/6$	2.5
$\pi/4$	1.46
$\pi/3$.67
$\pi/2$	0

