

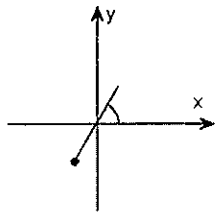
<b>Student:</b> _____ <b>Date:</b> _____	<b>Instructor:</b> Joe Better's <b>Course:</b> Pre-Calculus Pre AP (Master Course)	<b>Assignment:</b> 9.1 Classwork Day 1
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1. Plot the point given in polar coordinates.

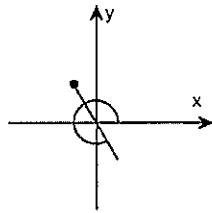
$(-6, 120^\circ)$

Choose the correct graph below.

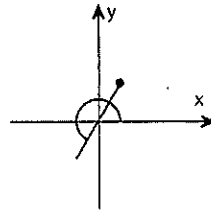
A.



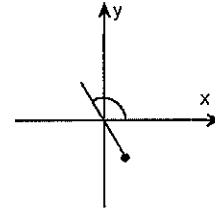
B.



C.



D.



ID: 9.1.23

2. Plot the point  $(-5, 4\pi)$ , given in polar coordinates, and find other polar coordinates  $(r, \theta)$  of this same point for which the following are true.

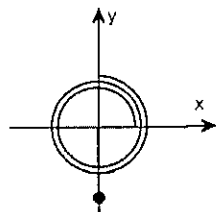
(a)  $r > 0, -2\pi \leq \theta < 0$

(b)  $r < 0, 0 \leq \theta < 2\pi$

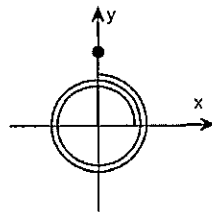
(c)  $r > 0, 2\pi \leq \theta < 4\pi$

Choose the graph that correctly plots the point  $(-5, 4\pi)$ .

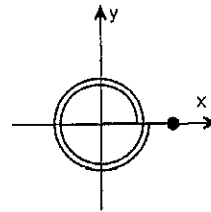
A.



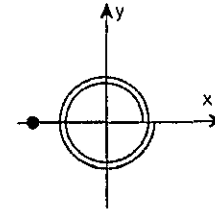
B.



C.



D.



(a) For the same point on the graph, find new values of  $(r, \theta)$  for which  $r > 0, -2\pi \leq \theta < 0$ .

\_\_\_\_\_ (Type an ordered pair. Type an exact answer, using  $\pi$  as needed.)

(b) For the same point on the graph, find new values of  $(r, \theta)$  for which  $r < 0, 0 \leq \theta < 2\pi$ .

\_\_\_\_\_ (Type an ordered pair. Type an exact answer, using  $\pi$  as needed.)

(c) For the same point on the graph, find new values of  $(r, \theta)$  for which  $r > 0, 2\pi \leq \theta < 4\pi$ .

\_\_\_\_\_ (Type an ordered pair. Type an exact answer, using  $\pi$  as needed.)

ID: 9.1.33

3. The polar coordinates of a point are given. Find the rectangular coordinates of this point.

$$\left(-1, \frac{7\pi}{4}\right)$$

What are the rectangular coordinates of this point?

\_\_\_\_\_ (Type an ordered pair. Simplify your answer, including any radicals. Use integers or fractions for any numbers in the expression.)

ID: 9.1.45

4. The polar coordinates of a point are given. Find the rectangular coordinates of this point.

$$(9.4, 5.6)$$

What are the rectangular coordinates of this point?

\_\_\_\_\_ (Type an ordered pair. Round to the nearest hundredth as needed.)

ID: 9.1.53

5. The rectangular coordinates of a point are given. Find polar coordinates  $(r, \theta)$  of this point with  $\theta$  expressed in radians. Let  $r > 0$  and  $-2\pi < \theta < 2\pi$ .

$$(7, -7)$$

One possibility for the polar coordinates of this point is \_\_\_\_\_.

(Simplify your answer. Type an ordered pair. Type your answer in radians. Type exact answers, using  $\pi$  as needed. Use integers or fractions for any numbers in the expression.)

ID: 9.1.59

6. The rectangular coordinates of a point are given. Find the polar coordinates  $(r, \theta)$  of this point with  $\theta$  expressed in radians. Let  $r > 0$  and  $-\pi \leq \theta \leq \pi$ .

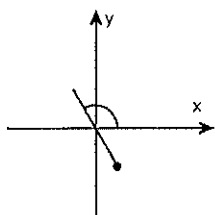
$$(-9.7, 4.7)$$

One possibility for the polar coordinates of this point is \_\_\_\_\_.

(Type an ordered pair. Use integers or decimals for any numbers in the expression. Do not round until the final answer. Then round to the nearest hundredth as needed.)

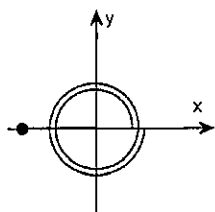
ID: 9.1.63

1.



D.

2.



D.

 $(5, -\pi)$  $(-5, 0)$  $(5, 3\pi)$ 

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

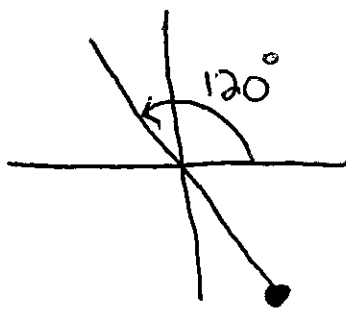
4.  $(7.29, -5.93)$

5.  $\left(7\sqrt{2}, \frac{7\pi}{4}\right)$

6.  $(10.78, 2.69)$

9.1 classwork day 1

①  $(-6, 120^\circ)$



②  $(-5, 4\pi)$  ~~scribble~~

a)  $r > 0, -2\pi \leq \theta < 0$

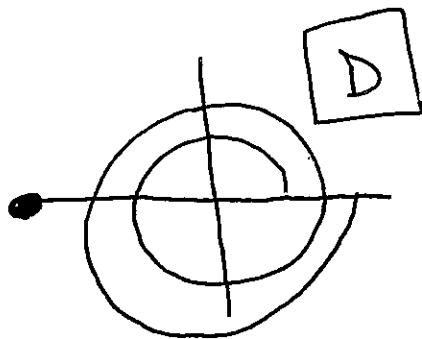
$(5, -\pi)$

b)  $r < 0, 0 \leq \theta < 2\pi$

$(-5, 0)$

c)  $r > 0, 2\pi \leq \theta < 4\pi$

$(5, 3\pi)$



## 9.1 classwork day 1 continued

③  $(-1, 7\pi/4)$  polar

Find rectangular

$$x = r \cos \theta$$

$$x = -1 \left( \cos 7\pi/4 \right)$$

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

$$x = -\frac{\sqrt{2}}{2}$$

$$y = r \sin \theta$$

$$y = -1 \left( \sin 7\pi/4 \right)$$

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

$$y = \frac{\sqrt{2}}{2}$$

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

rectangular

④  $(9.4, 5.6)$  polar

Find rectangular

$$x = r \cos \theta$$

$$x = 9.4 \cos 5.6$$

$$x = 7.29$$

$$y = r \sin \theta$$

$$y = 9.4 \sin 5.6$$

$$y = -5.93$$

$$(7.29, -5.93)$$

rectangular

9.1 classwork day 1 continued

⑤  $(7, -7)$  rectangular

$$r > 0$$

Find polar

$$-2\pi < \theta < 2\pi$$

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

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

$$r = \sqrt{(7)^2 + (-7)^2}$$

$$r = 7\sqrt{2}$$

$$\theta = \tan^{-1}\left(\frac{-7}{7}\right)$$

$$\theta = -\pi/4$$

$$\theta = 2\pi - \pi/4$$

$$\theta = 7\pi/4$$



Polar  $(7\sqrt{2}, 7\pi/4)$

$(7\sqrt{2}, -\pi/4)$

just one of  
several  
solutions

# 9.1 classwork day 1 continued

⑥ rectangular  $(-9.7, 4.7)$



Find polar

where  $r > 0$ ,  $-\pi \leq \theta \leq \pi$

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

$$r = \sqrt{(-9.7)^2 + (4.7)^2}$$

$$r = \underline{\underline{10.78}}$$

$$\theta = \tan^{-1}\left(\frac{4.7}{-9.7}\right)$$

$$\theta = -.451$$

$$\pi - .451 = \underline{\underline{2.69}}$$



$(10.78, 2.69)$

polar