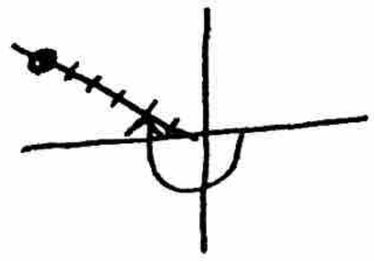
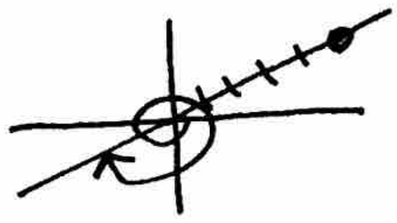
11.2 Polar Basics Name: Key

Plot the point that has the given polar coordinates.

1. $\left(6, \frac{-7\pi}{6}\right)$

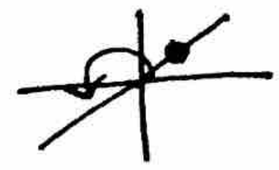


2. $\left(-5, \frac{-17\pi}{6}\right)$



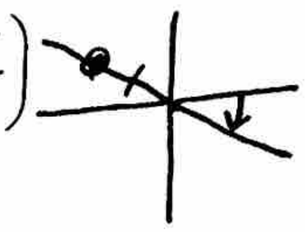
Plot the point that has the given polar coordinates. Then give two other polar coordinate representations of the point, one with r < 0 and the other with r > 0.

3. $\left(-1, \frac{7\pi}{6}\right)$



$(1, \pi/6)$
$(-1, -5\pi/6)$

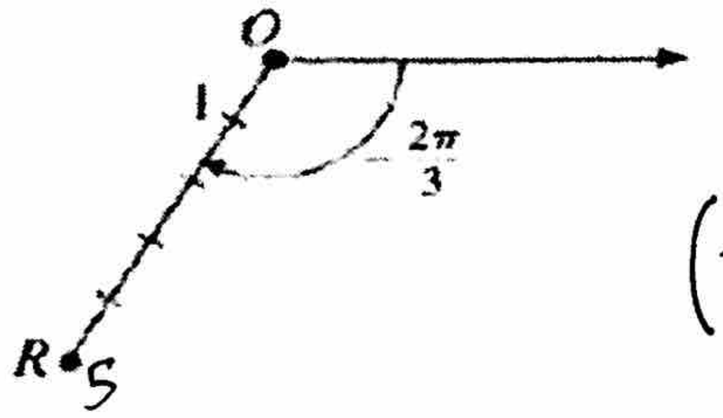
4. $\left(-2, -\frac{\pi}{3}\right)$



$(2, 2\pi/3)$
$(-2, 5\pi/3)$

A point is graphed in polar form. Find its rectangular coordinates.

5.



r θ
$(5, -\frac{2\pi}{3})$

$\left(-\frac{5}{2}, \frac{-5\sqrt{3}}{2}\right)$

Find the rectangular coordinates for the point whose polar coordinates are given.

6. $\left(6, \frac{2\pi}{3}\right)$

$(-3, 3\sqrt{3})$

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

$(1, -1)$

8. $(0, 13\pi)$

$(0, 0)$

Convert the rectangular coordinates to polar coordinates with r > 0 and $0 \le \theta < 2\pi$

9. (-1,1)

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

10. $\left(-\sqrt{6}, -\sqrt{2}\right)$

$(2\sqrt{2}, 7\pi/6)$

11. (-6,0)

$(6, \pi)$

Convert the equation to polar form.

12. $x = y$ $\theta = \pi/4$

13. $x^2 + y^2 = 9$ $r = 3$

14. $x = 4$ $r = 4\sec\theta$

15. $y = 5$ $r = 5\csc\theta$

Convert the polar equation to rectangular form.

16. $r = 7$ $x^2 + y^2 = 49$

17. $\theta = \pi$ $y = 0$

18. $r\cos\theta = 6$ $x = 6$

19. $r = 6\cos\theta$ $(x-3)^2 + y^2 = 9$