15, 17, 33

Ellipse Questions????

Vertices (0,2) (8,2)

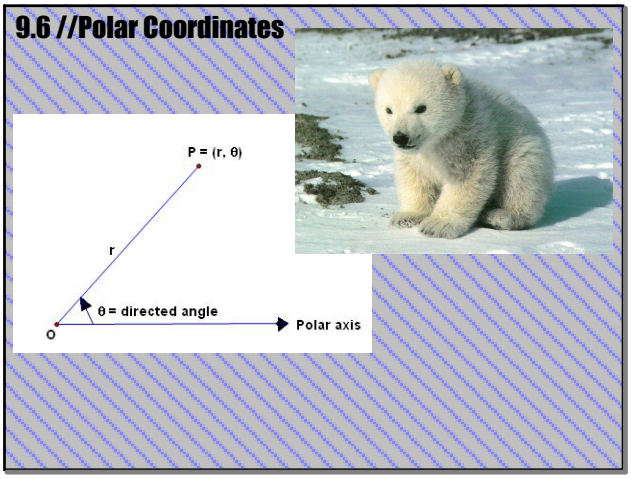
Center (4,2)

a=4
b=1

minor axis length = 2

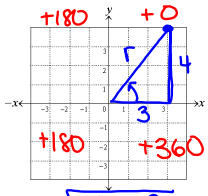
$\frac{(x-4)^2}{16} + \frac{(y-2)^2}{1} = 1$

Nov 18-10:23 AM



Dec 19-11:40 AM

Graph the point (3,4) on both the rectangular plane and the polar plane.

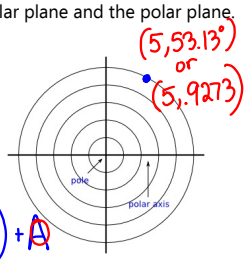


$r = \sqrt{3^2+4^2}$

$r = 5$

$\theta = \tan^{-1}\left(\frac{4}{3}\right) + 0$

$= 53.13°$

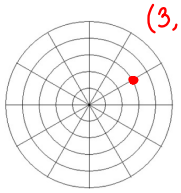


(5, 53.13°) or (5, .9273)

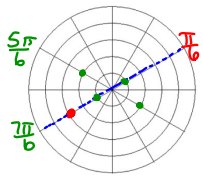
Jan 3-4:21 PM

Graph polar coordinate (3, π/6)

(3, 30°)

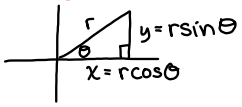


Graph polar coordinate (-3, π/6)



Jan 3-4:27 PM

Converting from a Polar to a Rectangular Coordinate



$\cos\theta = \frac{x}{r}$ $\sin\theta = \frac{y}{r}$

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

Example

Convert the polar coordinate $(2,\pi)$ to its rectangular form.

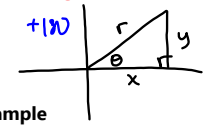
$(2\cos\pi, 2\sin\pi)$

$(-2, 0)$

p. 711: #1 (HW)

Dec 19-12:30 PM

Converting from a Rectangular to a Polar Coordinate



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

$\theta = \tan^{-1}\left(\frac{y}{x}\right) + A$

Example

Convert the rectangular coordinate (-3,2) to its polar coordinate.

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

$r = \sqrt{9+4}$

$r = \sqrt{13}$

$\theta = \tan^{-1}\left(\frac{2}{-3}\right)+180$

$\theta = 146.3°$

$\theta = \tan^{-1}\left(\frac{2}{-3}\right)+\pi$

$(\sqrt{13}, 146.3°)$

$(\sqrt{13}, 2.6)$

Dec 19-12:30 PM

Did you get all 4 formulas?

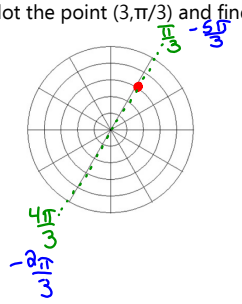
Check out the blue box on the bottom of p. 708 for reference...

Jan 3-4:38 PM

Multiple Representation of Points

Example

Plot the point $(3,\pi/3)$ and find 3 additional polar representations.



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

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

p. 711, #5 (HW)

Dec 19-12:34 PM

HOMEWORK

buh-buh-buh-burrrrr {polar coordinates}

9.6 (p. 711): 1-17 (every other odd), 21, 23, 31, 33, 37, 39 , 43-49 (odd), 61, 65, 69

Jan 3-4:56 PM