

# THIS IS A NO CALCULATOR QUIZ

[5 POINTS]

Find the equation of the directrix and the coordinates of both foci of the conic  $r = \frac{8}{3-5\cos\theta}$ .

Give your answers in rectangular coordinates.

$\frac{8}{3-5\cos\theta} \cdot \frac{\frac{1}{2}}{\frac{1}{2}} = \frac{\frac{8}{2}}{1-\frac{5}{2}\cos\theta}$   
 $e = \frac{5}{2}$   
 $ep = \frac{8}{2}$   
 $\frac{5}{2}p = \frac{8}{2}$   
 $5p = 8$   
 $p = \frac{8}{5}$   
 VERTICAL  
 LEFT  
 D:  $x = -\frac{8}{5}$   
 F:  $(0, 0), (-5, 0)$

$\theta$	$r$
0	-4
$\pi/2$	$8/3$
$\pi$	1
$3\pi/2$	$8/3$

CENTER =  $\frac{1}{2}(-4 + -1) = -\frac{5}{2}$   
 FOCUS =  $2(-\frac{5}{2}) = -5$

[9 POINTS]

Eliminate the parameter and write the corresponding rectangular equation.

(a)  $x = 2 - 5t \rightarrow t = \frac{2-x}{5}$   
 $y = 3 - 2t$   
 $y = 3 - 2(\frac{2-x}{5})$   
 $y = 3 - \frac{4-2x}{5}$   
 $y = \frac{15-4+2x}{5}$   
 $y = \frac{11+2x}{5}$

(b)  $x = 2 - 5\cos t \rightarrow \cos t = \frac{2-x}{5}$   
 $y = 3 - 2\sin t \rightarrow \sin t = \frac{3-y}{2}$   
 $\cos^2 t + \sin^2 t = 1$   
 $(\frac{2-x}{5})^2 + (\frac{3-y}{2})^2 = 1$   
 OR  $(\frac{x-2}{5})^2 + (\frac{y-3}{2})^2 = 1$

IGNORE, NOT REQUIRED

[6 POINTS]

Find a set of parametric equations for each graph.

(a) the line which passes through (4, -2) and (-1, 6)  
 $x = 4 + (-1-4)t = 4-5t$   
 $y = -2 + (6-(-2))t = -2+8t$   
 OR  
 $x = -1 + (4-(-1))t = -1+5t$   
 $y = 6 + (-2-6)t = 6-8t$

(b) the circle with center (-2, 4) and radius 3  
 $x = -2 + 3\cos t$   
 $y = 4 + 3\sin t$

+ 1/2 POINT FOR  $\begin{cases} x = \\ y = \end{cases}$