

MATH 1201 HWK QUIZ #3

1. SEC 9.5 #13.

$$\begin{cases} 12x + 3y = 15 \\ 2x - 3y = 13 \end{cases}$$

$$x = \frac{\begin{vmatrix} 15 & 3 \\ 13 & -3 \end{vmatrix}}{\begin{vmatrix} 12 & 3 \\ 2 & -3 \end{vmatrix}} = \frac{-45 - 39}{-36 - 6} = \frac{-84}{-42} = 2$$

$$y = \frac{\begin{vmatrix} 12 & 15 \\ 2 & 13 \end{vmatrix}}{\begin{vmatrix} 12 & 3 \\ 2 & -3 \end{vmatrix}} = \frac{156 - 30}{-42} = \frac{126}{-42} = -3$$

Solution (2, -3)

2. SEC 9.5 #16.

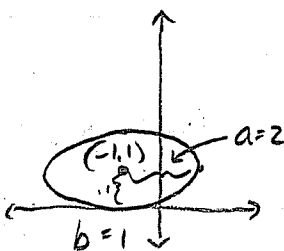
$$\begin{cases} 3x + 2y = 2 \\ 2x + 2y = 3 \end{cases}$$

$$x = \frac{\begin{vmatrix} 2 & 2 \\ 3 & 2 \end{vmatrix}}{\begin{vmatrix} 3 & 2 \\ 2 & 2 \end{vmatrix}} = \frac{-2}{2} = -1$$

$$y = \frac{\begin{vmatrix} 3 & 2 \\ 2 & 3 \end{vmatrix}}{\begin{vmatrix} 3 & 2 \\ 2 & 2 \end{vmatrix}} = \frac{5}{2}$$

Solution (-1, 5/2)

3. SEC 10.1 #23.



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

$$\text{FOCI: } c^2 = 4 - 1 = 3$$

$$c = \pm\sqrt{3}$$

$$\text{FOCI: } (-1 \pm \sqrt{3}, 1)$$

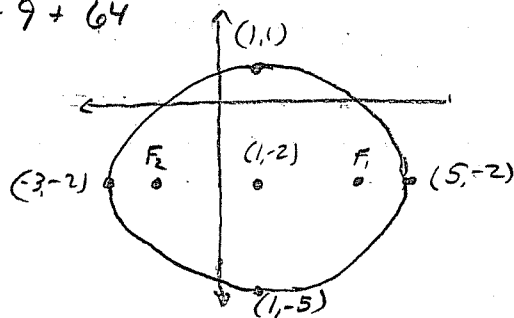
4. SEC 10.1 #53.

$$9x^2 + 16y^2 - 18x + 64y - 71 = 0$$

$$9(x^2 - 2x + \boxed{1}) + 16(y^2 + 4y + \boxed{4}) = 71 + 9 + 64$$

$$\frac{9(x-1)^2}{144} + \frac{16(y+2)^2}{144} = \frac{144}{144} \quad \text{Center } (1, -2)$$

$$\frac{(x-1)^2}{16} + \frac{(y+2)^2}{9} = 1$$

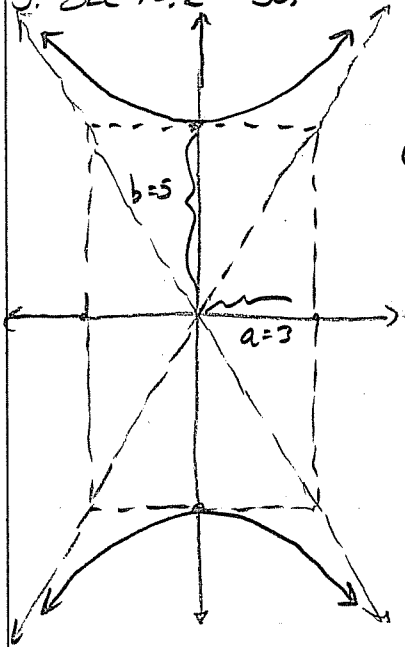


$$\text{FOCI: } c^2 = 16 - 9 = 7$$

$$c = \pm\sqrt{7}$$

$$\text{FOCI: } (1 \pm \sqrt{7}, -2)$$

5. SEC 10.2 #30.



$$\frac{y^2}{25} - \frac{x^2}{9} = 1$$

FYE

FOCI:  $c^2 = 34$

$$c = \pm\sqrt{34}$$

OR  $(0, \pm\sqrt{34})$