MAC1140 SEC29 Quiz 10-19-2007 9.4 10.1

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1.

[9.4.2cPT]Select the asymptotes of the hyperbola given by $\frac{x^2}{9} - \frac{y^2}{1} = 1$.

- ○ $y = \pm 9x$
- ● $y = \pm \frac{1}{3}x$
- ○ $y = \pm \frac{1}{9}x$
- ○ $y = \pm 3x$

$\frac{x^2}{9} - \frac{y^2}{1} = 0$

$y^2 = \frac{x^2}{9}$

$y = \pm \sqrt{\frac{x^2}{9}} = \pm \frac{x}{3}$.

2.

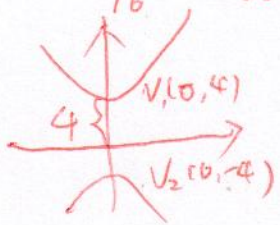
[9.4.3aPT]Select the vertices of the hyperbola given by $\frac{(y-5)^2}{16} - \frac{(x+1)^2}{33} = 1$.

- ○ $(-1 \pm 4, 5)$
- ○ $(-1, 5 \pm 7)$
- ○ $(-1 \pm 7, 5)$
- ● $(-1, 5 \pm 4)$

a^2 b^2.

1. Fundamental.

$\frac{y^2}{16} - \frac{x^2}{33} = 1$.



2. $y \in y-5 \Leftrightarrow$ up 5

$x \in x+1 \Leftrightarrow$ left 1

New center $(-1,5)$

New V $(-1, 5 \pm 4)$.

3.

[9.4.3bPT]Select the foci of the hyperbola given by $\frac{(y-4)^2}{25} - \frac{(x+3)^2}{39} = 1$.

- ○ $(-3 \pm 8, 4)$
- ○ $(-3, 4 \pm 5)$
- ● $(-3, 4 \pm 8)$
- ○ $(-3 \pm 5, 4)$

a^2 b^2.

1. Fundamental

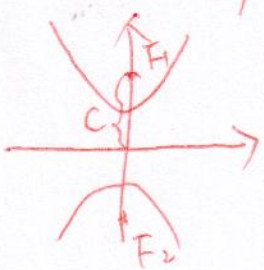
$\frac{y^2}{25} - \frac{x^2}{39} = 1$.

$c^2 = a^2 + b^2$

$= 64$

$c = \pm 8$

$c = 8$.

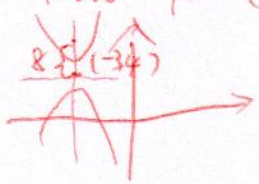


2. $y \in y-4 \Leftrightarrow$ up 4

$x \in x+3 \Leftrightarrow$ left 3.

New center $(-3,4)$

New F $(-3, 4 \pm 8)$.



4.

[10.1.1PT]Select the type of solution for the following system

$\begin{cases} 4x + 4y = 4 \\ 3x + 3y = 1 \end{cases}$

- ● No solution
- ○ A unique solution
- ○ Exactly two solutions
- ○ None of these
- ○ Infinitely many solutions

$\begin{cases} x+y=1 & (R_1 \cdot \frac{1}{4}) \\ 3x+3y=1 \end{cases}$

$\begin{cases} x+y=1 \\ 0+0=-2. & (R_2 - 3 \cdot R_1). \end{cases}$

$\begin{array}{r} 3x+3y=1 \\ -3x-3y=-3 \\ \hline 0=-2. \end{array}$

Never holds.