# Kelompok 2

## Minggu 8

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1. a. $4y + x^2 = 0$

- $x^2 = -4py$

$x^2 = -4(1)y$

$x^2 = 4(-1)y$

$\boxed{p = -1}$

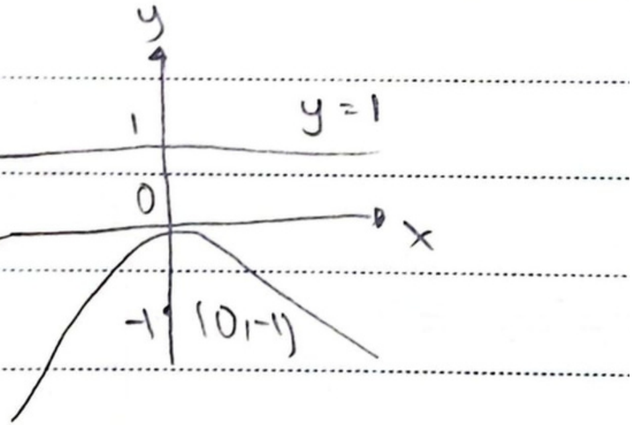
fokus $(0, p) = (0, -1)$

direktriks $y = -p$

$y = -(-1)$

$\boxed{y = 1}$

titik puncak $= (0, 0)$




# NOMOR 1A

1b $y^2 = 12x$

$y^2 = 4(3)x$

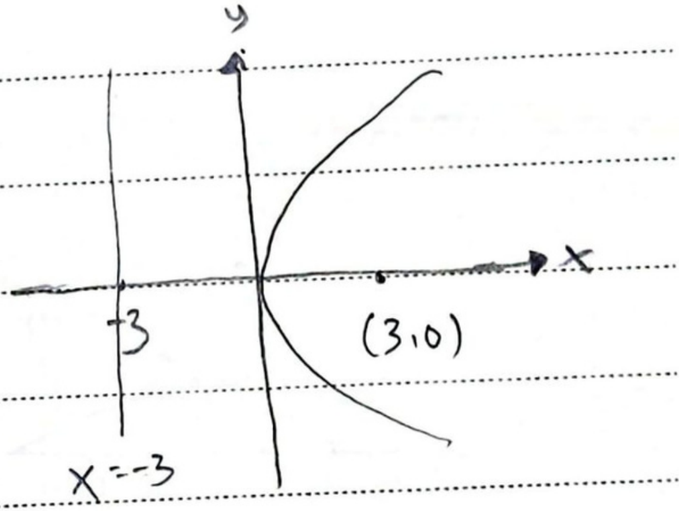
$\boxed{p = 3}$

Fokus $(p, 0) = (3, 0)$

direktriks $x = -p$

$\boxed{x = -3}$

titik puncak $= (0, 0)$




# NOMOR 1B

2a. $\frac{x^2}{64} + \frac{y^2}{100} = 1 \rightarrow \frac{x}{8} + \frac{y}{10} = 1$

$a = 10$

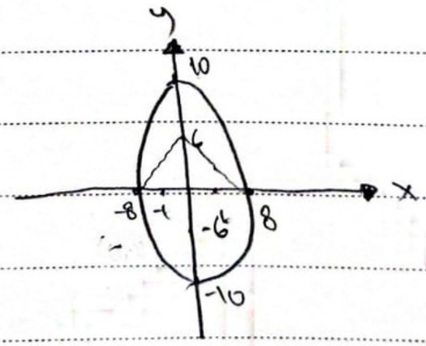
$b = 8$

$c = \sqrt{10^2 - 8^2} = 6$

Fokus $(0, \pm c) = (0, \pm 6)$

Keeksentrikan: $e = \frac{c}{a} = \frac{6}{10} = \frac{3}{5}$

Titik puncak $(0, \pm a) = (0, \pm 10)$




# NOMOR 2A

2b. $25x^2 + 9y^2 = 225$

$\frac{25}{225}x^2 + \frac{9}{225}y^2 = 1$

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

$a = 5$

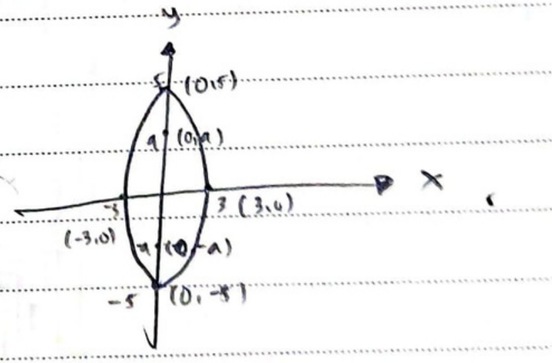
$b = 3$

$c = \sqrt{5^2 - 3^2} = 4$

fokus $(0, \pm c) = (0, \pm 4)$

keeksentrikan $= e = \frac{c}{a} = \frac{4}{5}$

titik puncak $(0, \pm a) = (0, \pm 5)$




# NOMOR 2B

# NOMOR 3A

3) (a) $\frac{x^2}{144} - \frac{y^2}{25} = 1$

$\frac{x^2}{12^2} - \frac{y^2}{5^2} = 1$

titik puncak $(\pm 12, 0)$

fokus $c = \sqrt{144+25}$

$= \sqrt{169}$

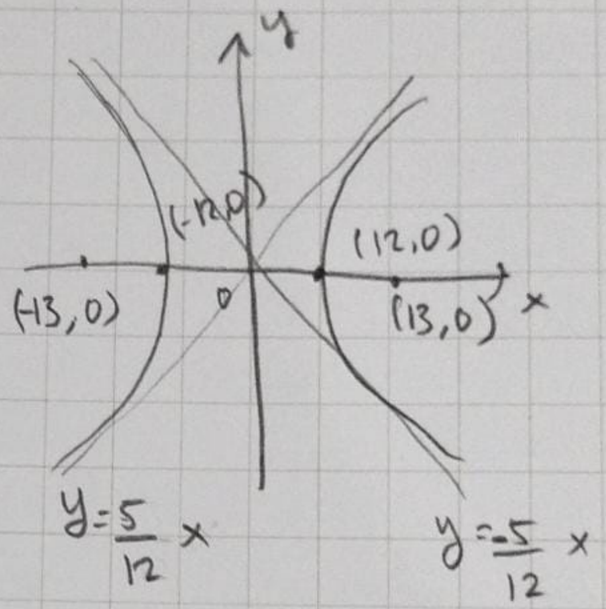
$= 13$

$(\pm 13, 0)$

garis asimtot : $y = \pm \left(\frac{b}{a}\right) x$

$y = \frac{5}{12} x$

$y = -\frac{5}{12} x$



# NOMOR 3B

(b) $9y^2 - x^2 = 9$

$\frac{y^2}{1^2} - \frac{x^2}{3^2} = 1$

titik puncak $(0, \pm 1)$

fokus $c = \sqrt{9+1}$

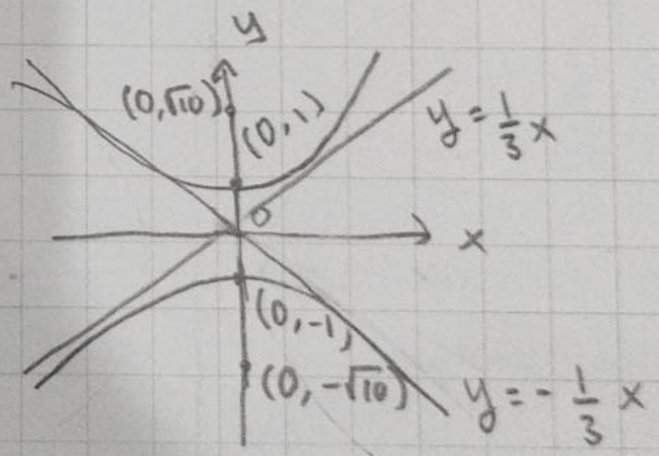
$= \sqrt{10}$

$(0, \pm\sqrt{10})$

garis asimtot : $y = \pm \left(\frac{a}{b}\right)x$

$y = \frac{1}{3}x$

$y = -\frac{1}{3}x$



# NOMOR 4

Tugas Respons Kalkulus

4. Tentukan persamaan irisan kerucut :

a.) P (0,0) dan f (0,-2)

Jwb :

untuk $p < 0$ dan f (0, p) berlaku

$x^2 = 4py$

$x^2 = 4(-2).y$

$x^2 = -8y$

b.) f : (2,0) dan direktrisnya $x = -2$

untuk $p > 0$ dan f (p, 0), berlaku

$y^2 = 4px$

$y^2 = 4(2).x$

$y^2 = 8x$

5. a. elips Fokus $(\pm 2, 0)$ ; Puncak $(\pm 5, 0)$

Fokus $(\pm c, 0)$
maka $c = 2$

puncak $(\pm a, 0)$
maka $a = 5$

$b^2 = a^2 - c^2$
$= 5^2 - 2^2$
$= 25 - 4$
$= 21$
$b^2 = 21$

karena Fokus $(\pm c, 0)$
maka
rumus:
$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$

Maka persamaan :

$$\frac{x^2}{25} + \frac{y^2}{21} = 1 \text{ //}$$

# NOMOR 5

DATE :

6. Tentukan Persamaan irisan kerucut berikut.

a. Hiperbola dengan Fokus $(0, \pm 3)$ dan titik Puncak $(0, \pm 1)$

Fokus $(0, \pm 3) \rightarrow c = 3$

Puncak $(0, \pm 1) \rightarrow a = 1$

$b^2 = c^2 - a^2 = 3^2 - 1^2 = 9 - 1 = 8$

Karena titik fokus berada pada sumbu-y

Pers Hiperbolanya adalah $\rightarrow \frac{y^2}{a^2} - \frac{x^2}{b^2} = 1 \rightarrow y^2 - \frac{x^2}{8} = 1$

b. Hiperbola dengan titik Puncak $(\pm 3, 0)$ dan garis asimtot $y = \pm 2x$.

karena titik puncak berada pada sumbu x

Pers Hiperbolanya adalah $\rightarrow \frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$

maka dari itu, asimtot $\Rightarrow y = \pm \left(\frac{b}{a}\right)x \rightarrow \frac{b}{a} = 2$ dan $a = 3$

didapat $b = 6$.

maka pers Hiperbolanya adalah $\rightarrow \frac{x^2}{3^2} - \frac{y^2}{6^2} = 1 \rightarrow \frac{x^2}{9} - \frac{y^2}{36} = 1$

# NOMOR 6