BAGIAN A NO 17

$$r = \frac{4}{5 - 4\sin\theta}$$

$$r = \frac{\frac{4}{5}}{1 - \frac{4}{5}\sin\theta}$$

conic section : $\frac{ep}{1 \pm e\sin\theta}$

$e = \frac{4}{5}$, $e < 1$ mata bentuknya elips vertikal

saat $\theta = \frac{\pi}{2}$, $r = 4$

saat $\theta = \frac{3\pi}{2}$, $r = \frac{4}{9}$

titik pusat $= (0, \frac{4 - (-\frac{4}{9})}{2} - \frac{4}{9})$ = [illegible]

$= (0, \frac{32}{18})$

fokus

$e = \frac{c}{a}$, $a = 4 - \frac{32}{18} = 4 - \frac{16}{9} = \frac{20}{9}$

fokus = [illegible]

$= (0, \frac{16}{9} \pm \frac{16}{9})$ atau $(0, \frac{32}{9})$ dan $(0,0)$

direktriks

$y = 4 + \frac{20}{9}$ dan $y = -\frac{4}{9} - \frac{20}{9}$

BAGIAN B NO 18

$r = \sqrt{3}\cos\theta \rightarrow$ lingkaran

saat $\theta = 0$, $r = \sqrt{3}$

$\theta = \frac{\pi}{2}$, $r = 0$

$r = \sin\theta \rightarrow$ lingkaran

saat $\theta = 0$, $r = 0$

$\theta = \frac{\pi}{2}$, $r = 1$

maka gambarnya

titik potong saat $\sqrt{3}\cos\theta = \sin\theta$

$\tan\theta = \sqrt{3}$

$\theta = \frac{\pi}{3}$

$luas = \frac{1}{2}\int_a^b f^2(\theta)\, d\theta$

maka luas $= \frac{1}{2}\left(\int_0^{\frac{\pi}{3}} \sin^2\theta\, d\theta + \int_{\frac{\pi}{3}}^{\frac{\pi}{2}} (\sqrt{3})^2\cos^2\theta\, d\theta\right)$

$= \frac{1}{2}\left(\frac{1}{2}(\theta - \sin\theta\cos\theta)\Big|_0^{\frac{\pi}{3}} + \frac{3}{2}\left(\theta + \frac{\sin 2\theta}{2}\right)\Big|_{\frac{\pi}{3}}^{\frac{\pi}{2}}\right)$

$= \frac{1}{2}\left(\frac{1}{2}\left(\frac{\pi}{3} - \frac{1}{4}\sqrt{3}\right) + \frac{3}{2}\left(\frac{\pi}{6} + \left(-\frac{\sqrt{3}}{4}\right)\right)\right)$

$= \frac{\pi}{12} - \frac{\sqrt{3}}{16} + \frac{3\pi}{12} - \frac{3\sqrt{3}}{16} = \frac{\pi}{3} - \frac{\sqrt{3}}{4}$