PCP Quiz 6

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① ⑧ $\int_0^{\pi/2} y\,dx$ 8 : 2 $\int_0^{?\pi} y\,dx$

Karena y dlm dt, maka atas bawah dan dunia t

$\Rightarrow$ $x \cdot 2\pi$: $\not{2}(t - \sin t)$

π : $t - \sin t$

maka $t = \pi$

$x : 0$

0 : $t - \sin t$

maka $t = 0$

$\Rightarrow 2\int_0^{\pi} 1 - \cos t\,dt$

$\Rightarrow 2 \cdot (t - \sin t \,|_0^{\pi})$

$\Rightarrow 2(\pi - 0) \Rightarrow 2\pi$ //

② a. A$(-5\sqrt{3}, -5)$, B$(0, 4)$

A → $\tan\theta = \frac{y}{x} = \frac{-5}{-5\sqrt{3}} = \frac{1}{\sqrt{3}}$

$\theta = \arctan\left(\frac{1}{\sqrt{3}}\right) \Rightarrow \theta = 30^\circ$

$r^2 = (-5\sqrt{3})^2 + (-5)^2$

$r = \sqrt{100}$

$r = 10$

B → $(0, 4)$

$\tan\theta = \frac{y}{x} = \frac{4}{0} = \infty$

$\theta = \arctan(\infty)$

$\theta = \frac{\pi}{2}$ $r^2 = x^2 + y^2$

$r = \sqrt{0^2 + 4^2}$

$r = 4$

① A$(10, \pi/6)$ ② A$(-10, \frac{7\pi}{6})$

③ A$(10, -\frac{11\pi}{6})$ ④ A$(-10, -\frac{5\pi}{6})$

① B$(4, \pi/2)$ ② B$(-4, \frac{3}{2}\pi)$

③ B$(-4, -\frac{3\pi}{2})$ ④ B$(-4, -\frac{\pi}{2})$

③. a. $x + y = 8$

$x = r\cos\theta$ $y = r\sin\theta$

$\Rightarrow r\cos\theta + r\sin\theta = 8$ Kali kedua ruas dgn $\frac{1}{2}\sqrt{2}$

$r(\frac{1}{2}\sqrt{2}\cos\theta + \frac{1}{2}\sqrt{2}\sin\theta) = 4\sqrt{2}$

$r(\cos 45^\circ \cos\theta + \sin 45^\circ \sin\theta) = 4\sqrt{2}$

$r(\cos(\theta - \frac{\pi}{4})) = 4\sqrt{2} \Rightarrow r = \frac{4\sqrt{2}}{\cos(\theta - \frac{\pi}{4})}$ //

④. $r = \frac{6}{3 + 3\sin(\theta - \frac{\pi}{6})}$

$r = \frac{2}{1 + \sin(\theta - \frac{\pi}{6})}$

$e = 1$ $\quad d = 2$

anggap saja $y = r - \sin\theta$ yg nanti diretain

$\Rightarrow r + r\sin(\theta - \frac{\pi}{6}) = 2$

$r + y = 2$

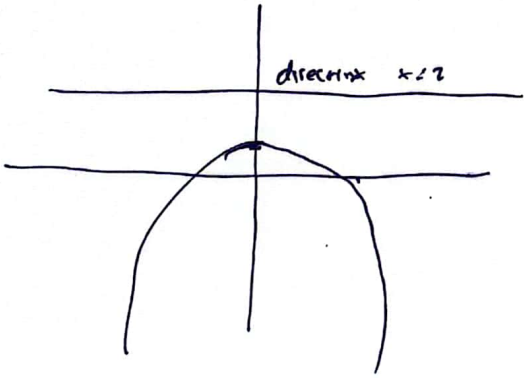
$r = 2 - y$ → kuadratkan kedua ruas,

$r^2 = (2-y)^2$

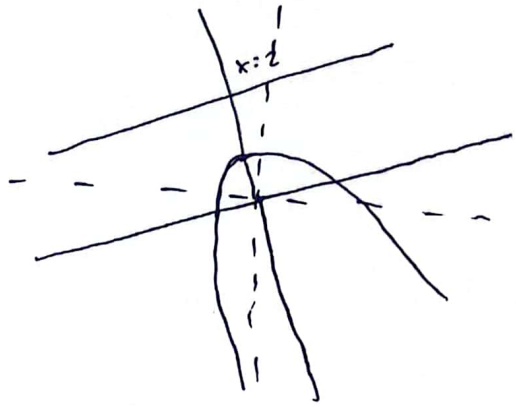
$x^2 + y^2 = 4 - 4y + y^2$

$x^2 = -4(y - 1)$ ⟵

↓ Bentuk sblm rotasi



Setelah direct adi ⟹



⑤. $r = 10.\sin 3\theta$

Simetris terhadap sumbu −

① $(r, \theta) \rightarrow (r, -\theta)$

$r = 10.\sin -3\theta$

$r = -10.\sin 3\theta$ ✗

② $(-r, \pi - \theta)$

$\Rightarrow -r = 10.\sin(3\pi - \theta)$

$r = -10.\sin\theta$ ✗

Simetris thdp sb. y

① $(-r, -\theta)$

$-r = 10.\sin -3\theta$

$-r = -10.\sin 3\theta$

$r = 10.\sin 3\theta$ ✓ (Cukup)

Simetris thdp pole

①. $(-r, \theta)$

$-r = 10.\sin 3\theta$

$r = -10.\sin 3\theta$ ✗

② $(r, \pi + \theta)$

$r = 10.\sin(3(\pi + \theta))$

$r = 10.\sin(3\pi + 3\theta)$

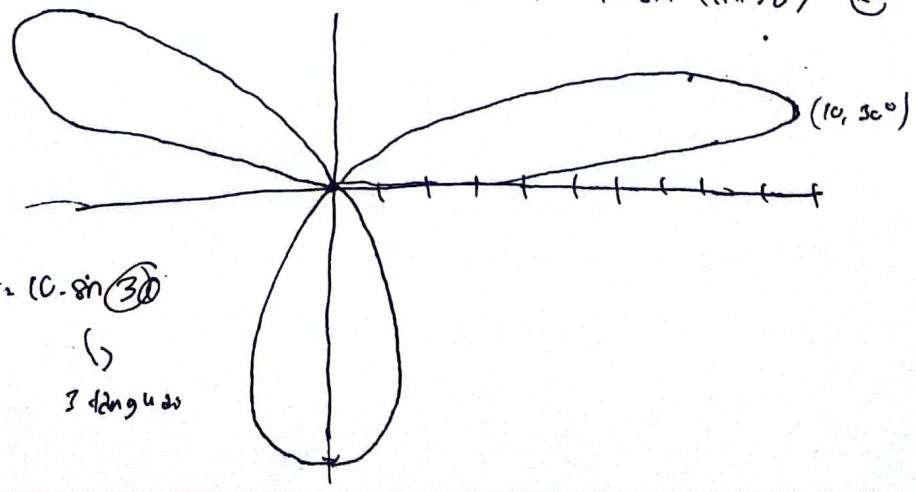
$r = 10.\sin(\pi + 3\theta)$

$r = -10.\sin(\pi + 3\theta)$ ✓

Tidak simetris thdp sb. x
Simetris thdp sb. y
Tidak simetris thdp pole

θ	r	
0	0	kuadran 1
30	10	
45	$5\sqrt{2}$	
60	0	
90		
120		kuadran 2
135		
150		
180	0	kuadran 3
210	-10	
225	$-5\sqrt{2}$	
240	0	

kuadran 2 dicoriminan tdk usah dicari.



$r = 10.\sin 30$

↓

3 daun