

Seminar Addmath A+

Mastery Vol 3

Sabtu
9/7/21

Hubungan Linear

Tricks dan Tips.

- ① y → tak kisah, yang ada y
- ② x → ken x je
- ③ m
- ④ c

$$y = mx + c$$

1) $y = px^2 + qx$

plot graf $\frac{y}{x}$ dan x .

$$\frac{y}{x} = \frac{px^2}{x} + \frac{qx}{x}$$

$$\frac{y}{x} = px + q$$

2) $y = ab^x$

plot graf $\log_{10} y$ dan x .

$$\log_{10} y = \log_{10} ab^x$$

$$\log_{10} y = \log_{10} a + \log_{10} b^x$$

$$\log_{10} y = \log_{10} a + x \log_{10} b$$

$$\log_{10} y = \log_{10} b^x + \log_{10} a$$

3) $y - \sqrt{x} = \frac{3}{\sqrt{x}}$

$$y = \frac{3}{\sqrt{x}} + \sqrt{x}$$

$$y\sqrt{x} = 3 + (\sqrt{x})(\sqrt{x})$$

$$y\sqrt{x} = 3 + 1x$$

$$y\sqrt{x} = 1x + c$$

4) $y = \frac{h^x}{k}$

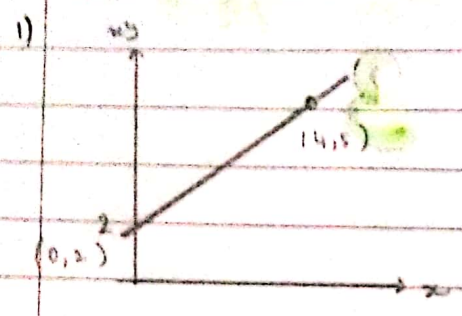
#kalau ada kuasa, guna log

$$\log_{10} y = \log_{10} h^x - \log_{10} k$$

$$\log_{10} y = x \log_{10} h - \log_{10} k$$

$$\log_{10} y = \log_{10} h^x - \log_{10} k$$

Paper 1



$$y = b + \frac{a}{x}$$

$$xy = bx + a$$

$$y = mx + c$$

$$b = m$$

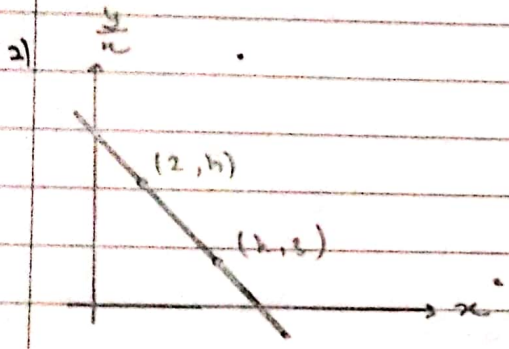
$$a = C$$

$$a = 2$$

$$b = \frac{y_2 - y_1}{x_2 - x_1}$$

$$x_2 = x_1 \quad \left. \begin{matrix} \\ \end{matrix} \right\} = \frac{3}{4}$$

$$0 = \frac{2 - 5}{0.4}$$



$$y = 9x - x^2$$

$$h = -1(2) + 9$$

$$h = -2 + 9$$

$$y = 9 - x^2$$

$$h = 7$$

$$y = -1x^2 + 9$$

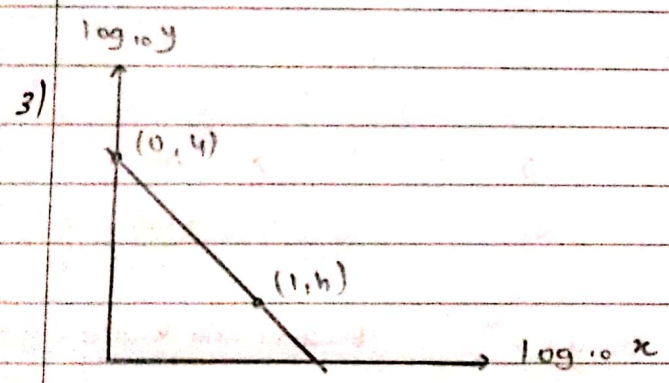
$$3 = -1(k) + 9$$

$$3 = -k + 9$$

$$y = mx + c$$

$$k = -3 + 9$$

$$k = 6$$



a) linear form

$$\log_{10} y = \log_{10} kx^{-2}$$

$$\log_{10} y = \log_{10} k + \log_{10} x^{-2}$$

$$\log_{10} y = \log_{10} k - 2 \log_{10} x$$

$$\log_{10} y = -2 \log_{10} x + \log_{10} k$$

$$y = mx + c$$

b) k dan h.

$$m = -2$$

$$\log_{10} k = c$$

$$\frac{y_2 - y_1}{x_2 - x_1} = -2$$

$$\log_{10} k = 4$$

$$x_2 - x_1$$

$$k = 10\,000$$

$$\frac{h - 4}{1 - 0} = -2$$

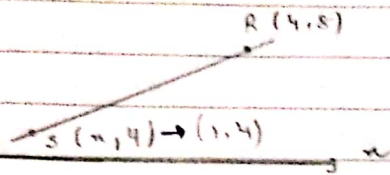
$$1 - 0$$

$$h - 4 = -2$$

$$1$$

$$h = 2$$

4) $\log_{10} y$



panjang RS adalah 5 unit.

a) p

$$\text{jarak} = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$5 = \sqrt{(4 - p)^2 + (8 - 4)^2}$$

$$5^2 = (4 - p)^2 + (4)^2$$

$$25 = 16 - 8p + p^2 + 16$$

$$0 = p^2 - 8p + 32 - 25$$

$$0 = p^2 - 8p + 7$$

$$p = 1, p = 7$$

b) express y in terms of x.

$$\log_{10} y = \frac{4}{3}x + c$$

$$4 = \frac{4}{3}(1) + c$$

$$c = \frac{8}{3}$$

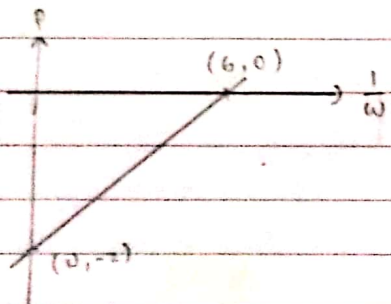
$$\left(\log_{10} y = \frac{4}{3}x + \frac{8}{3} \right) \times 3$$

$$3 \log_{10} y = 4x + 8$$

$$\log_{10} y = \frac{4x + 8}{3}$$

$$y = 10^{\frac{4x+8}{3}}$$

5)



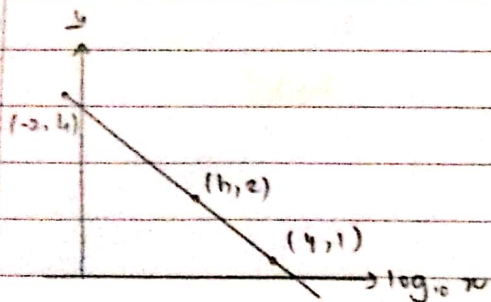
$$p = \frac{1}{3} \left(\frac{1}{w} \right) + (-2)$$

$$p = \frac{1}{3w} - 2$$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$= \frac{0 - (-2)}{6 - 0} = \frac{2}{6} = \frac{1}{3}$$

c)



$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$= \frac{1 - 4}{4 - (-2)}$$

$$= \frac{-3}{6} = -\frac{1}{2}$$

$$= \frac{-3}{6} = -\frac{1}{2}$$

a) express x in terms of y.

$$y = mx + c$$

$$y = -\frac{1}{2} \log_{10} x + c$$

$$1 = -\frac{1}{2}(4) + c$$

$$c = 3$$

$$y = -\frac{1}{2} \log_{10} x + 3$$

$$\frac{1}{2} \log_{10} x = 3 - y$$

$$\log_{10} x = 2(3 - y)$$

$$\log_{10} x = 2(3 - y)$$

$$\log_{10} x = 6 - 2y$$

$$x = 10^{6 - 2y}$$

b) h,

$$y = -\frac{1}{2} \log_{10} x + 3$$

$$2 = -\frac{1}{2}(h) + 3$$

$$2 - 3 = \frac{-h}{2}$$

$$-1 = \frac{-h}{2}$$

$$-2 = -h$$

$$h = 2$$

$$m = -\frac{1}{2}$$

$$\frac{y_2 - y_1}{x_2 - x_1} = -\frac{1}{2}$$

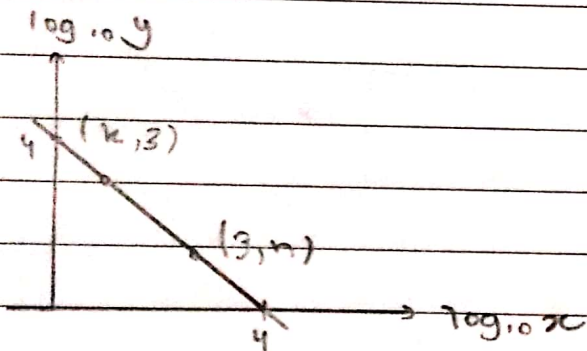
$$\frac{1 - 2}{4 - h} = -\frac{1}{2}$$

$$2(-1) = -1(4 - h)$$

$$-2 = -4 + h$$

$$h = 2$$

7)



$$m = \frac{-y}{x} = \frac{-4}{4} = -1$$

a) express y.

$$\log_{10} y = -1 \log_{10} x + 4(1)$$

$$\log_{10} y = \log_{10} x^{-1} + 4 \log_{10} 10$$

$$\log_{10} y = \log_{10} x^{-1} + \log_{10} 10^4$$

$$\log_{10} y = \log_{10} (x^{-1} \times 10^4)$$

$$y = 10000 x^{-1}$$

$$y = \frac{10000}{x}$$

b) nilai h dan k.

$$\log_{10} y = -\log_{10} x + 4$$

$$3 = -k + 4$$

$$3 - 4 = -k$$

$$k = 1$$

$$h = -3 + 4$$

$$h = 1$$

Trigonometri

DATE: _____

$\cos x$	} Basic	$\sec x = \frac{1}{\cos x}$	$\sin^2 A + \cos^2 A = 1$
$\sin x$		$\operatorname{cosec} x = \frac{1}{\sin x}$	$\sec^2 A = 1 + \tan^2 A$
$\tan x$		$\cot x = \frac{1}{\tan x}$	$\operatorname{cosec}^2 A = 1 + \cot^2 A$

1) $\sec^2 x = 4$

$1 + \tan^2 x = 4$

$\tan^2 x = 4 - 1$

$\tan^2 x = 3$

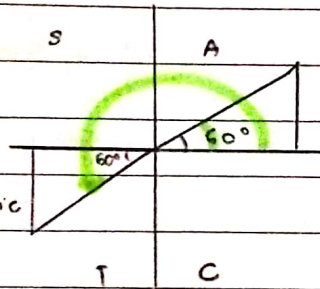
$\tan x = \pm\sqrt{3} \rightarrow \text{Basic}$

$\tan x = \sqrt{3}$

$x = \tan^{-1} \sqrt{3}$

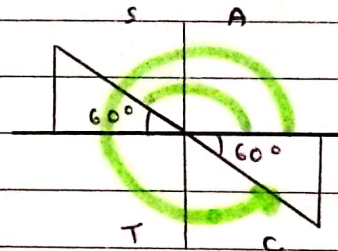
$x = 60^\circ, 240^\circ$

$\therefore 60^\circ, 120^\circ, 240^\circ, 300^\circ \#$



$\tan x = -\sqrt{3}$

$\tan x = -\sqrt{3} \rightarrow \text{Basic}$



$x = 180 - 60 \quad 360 - 60$

$x = 120^\circ \quad 300^\circ$

2) $\sec^2 x = 4 \tan x - 2$

$1 + \tan^2 x = 4 \tan x - 2$

$\tan^2 x - 4 \tan x + 3 = 0$

$\tan^2 x - 4 \tan x + 3 = 0 \rightarrow \text{kuadratik}$

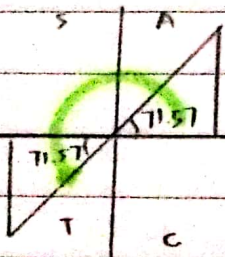
$a = 1, b = -4, c = 3$

$\tan x = 3, \tan x = 1 \rightarrow \text{Basic}$

Flaw

1) cari basic

2) buat kuadran



$\tan x = 3$

$x = \tan^{-1} 3$

$x = 71.57^\circ$

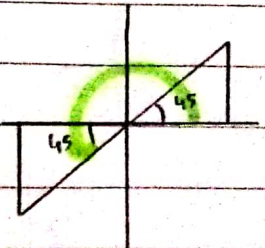
$x = 251.57^\circ$

$\tan x = 1$

$x = \tan^{-1} 1$

$x = 45^\circ$

$x = 225^\circ$



$x = 45^\circ, 71.57^\circ, 225^\circ, 251.57^\circ \#$

$$5) \sin^2 x = 4 \cos^2 x + 4 \cos x + 1$$

$$1 - \cos^2 x = 4 \cos^2 x + 4 \cos x + 1$$

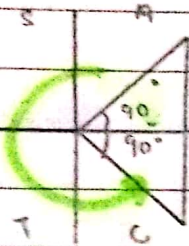
$$5 \cos^2 x + 4 \cos x + 0 = 0$$

$$a = 0, a = -\frac{4}{5}$$

$$\cos x = 0, \cos x = -\frac{4}{5}$$

$$\cos^2 x + \sin^2 x = 1$$

$$\sin^2 x = 1 - \cos^2 x$$

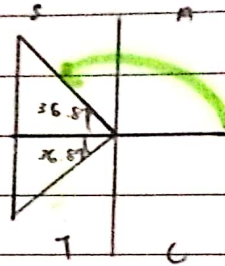


$$\cos x = 0$$

$$x = \cos^{-1} 0$$

$$x = 90^\circ$$

$$= 270^\circ$$



$$\cos x = -\frac{4}{5}$$

takkan masuk rumus cos

$$\cos x = \frac{4}{5}$$

$$x = \cos^{-1} \frac{4}{5}$$

$$x = 143.13^\circ$$

$$= 216.87^\circ$$

$$x = 90^\circ, 143.13^\circ, 216.87^\circ, 270^\circ$$

Soalan Buktikan.

$$\tan x = \frac{\sin}{\cos}$$

$$1) \sec x - \tan x \sin x = 1$$

sec x, band

$$\frac{1}{\cos x} = \left(\frac{\sin x}{\cos x} \right) \sin x = \frac{1}{\cos x} \quad \left. \begin{array}{l} \\ \\ \end{array} \right\} \begin{array}{l} 1 \div 1 \\ \cos x \end{array}$$

$$\frac{1}{\cos x} - \frac{\sin^2 x}{\cos x} = \cos x$$

$$\frac{1 - \sin^2 x}{\cos x} = \cos x$$

$$\cos^2 x + \sin^2 x = 1$$

$$\cos^2 x = 1 - \sin^2 x$$

$$\cos^2 x = \cos x$$

$$\cos x$$

$$\cos x = \cos x$$

$$2) \frac{1 + \cos x}{\sin x} = \operatorname{cosec} x + \cot x$$

$$\begin{aligned} \frac{1}{\sin x} + \frac{\cos x}{\sin x} &= \frac{1}{\sin x} + \frac{1}{\tan x} \\ &= \frac{1}{\sin x} + \frac{1}{\frac{\sin x}{\cos x}} \\ &= \frac{1}{\sin x} + \frac{\cos x}{\sin x} \quad * \end{aligned}$$

$$3) \frac{\operatorname{sec} \theta + \sin \theta}{\tan \theta + \cot \theta} = \sin^2 \theta$$

$$\begin{aligned} \frac{1}{\cos \theta} (\sin \theta) &= \sin^2 \theta \quad \tan = \frac{\sin}{\cos} \\ \frac{\sin \theta}{\cos \theta} + \frac{1}{\tan \theta} & \\ \frac{\sin \theta}{\cos \theta} &= \sin^2 \theta \quad \frac{1}{\tan} = \frac{\cos}{\sin} \end{aligned}$$

$$\frac{\sin \theta \times \sin \theta + \cos \theta \times \cos \theta}{\cos \theta \times \sin \theta}$$

$$\frac{\sin^2 \theta + \cos^2 \theta}{\cos \theta \sin \theta} = \sin^2 \theta$$

$$\frac{\sin^2 \theta + \cos^2 \theta}{\cos \theta \sin \theta}$$

$$\frac{\sin \theta}{\cos \theta} \div \frac{\sin^2 \theta + \cos^2 \theta}{\cos \theta \sin \theta} = \sin^2 \theta$$

$$\frac{\sin \theta}{\cos \theta} \times \frac{\cos \theta \sin \theta}{\sin^2 \theta + \cos^2 \theta} = \sin^2 \theta$$

$$\sin^2 \theta \times \sin \theta = \sin^2 \theta$$

$$\sin^2 \theta = \sin^2 \theta \quad *$$