TUGAS KALKULUS I

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a. $2x - y = 0$ dan $x + y = 3$

$2x - y = 0$

$2x = y$

titik sumbu $x \Rightarrow y = 0$

$y = 2x$

$0 = 2x$

$x = 0 \quad (0,0)$

titik sumbu $y \Rightarrow x = 0$

$y = 2(0)$

$y = 0 \quad (0,0)$

$x + y = 3$

$y = 3 - x$

titik sumbu $x \Rightarrow y = 0$

$y = 3 - x$

$0 = 3 - x$

$x = 3 \rightarrow (3,0)$

titik sumbu $y \Rightarrow x = 0$

$y = 3 - x$

$y = 3 - 0$

$y = 3 \quad (0,3)$

titik 2 grafik

$2x = y$ & $y = 3 - x$

$2x = 3 - x$

$3x = 3$

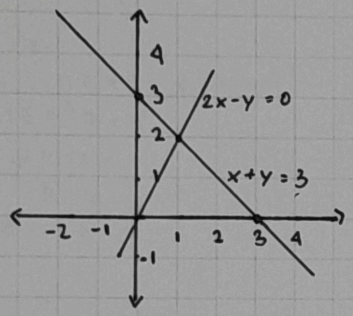
$x = 1$

$2x = y$

$2(1) = y$

$y = 2$

titik = $(1,2)$



b. $y = x^2 - 3x + 2$ dan $y = 2 - x$

titik sumbu $x \Rightarrow y = 0$

$0 = x^2 - 3x + 2 \quad 2 = -2 \cdot -1$

$(x-2)(x-1) \quad -3 = -2 - 1$

$x = 2 \quad x = 1$

$(2,0) \quad (1,0)$

titik sumbu $y \Rightarrow x = 0$

$y = 0^2 - 3(0) + 2$

$y = 2$

$(0,2)$

titik puncak x dan y

$x_p = \frac{-b}{2a} = \frac{-(-3)}{2(1)} = \frac{3}{2} = 1.5$

$y_p = -\frac{(b^2 - 4ac)}{4a} = -\frac{((-3)^2 - 4 \cdot 1 \cdot 2)}{4 \cdot 1}$

$= -\frac{(9-8)}{4} = -\frac{1}{4} = -0,25$

$(1.5, -0,25)$

titik sumbu $x \Rightarrow y = 0$

$0 = 2 - x$

$x = 2 \quad (2,0)$

titik sumbu $y \Rightarrow x = 0$

$y = 2 - (0)$

$y = 2 \quad (0,2)$

titik 2 grafik

$y = y$

$x^2 - 3x + 2 = 2 - x$

$x^2 - 3x + 2 - 2 + x = 0$

$x^2 - 2x = 0$

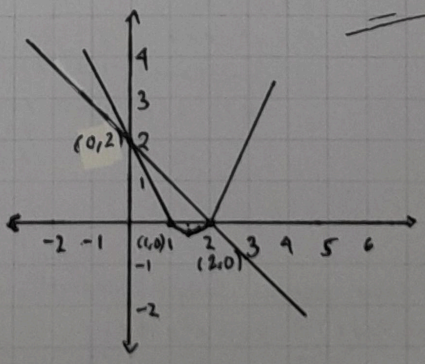
$x(x-2) = 0$

$x = 0 \quad x = 2$

$y = 2 - 0 \quad y = 2 - 2$

$y = 2 \quad y = 0$

$(0,2) \quad (2,0)$



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c. $y = x^2$ dan $y = x^2 - 6x + 7$

titik potong sumbu x $\Rightarrow y = 0$

$0 = x^2$

$x = 0$

titik potong sumbu y $\Rightarrow x = 0$

$y = 0^2$

$y = 0$

titik puncak x dan y

$x_p = \frac{-b}{2a} = \frac{0}{2 \cdot 1} = 0$

$y_p = 0^2 = 0$ $\Big\}(0,0)$

titik potong sumbu x $\Rightarrow y = 0$

$0 = x^2 - 6x + 7$

$x_{1,2} = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$= \frac{-(-6) \pm \sqrt{(-6)^2 - 4 \cdot 1 \cdot 7}}{2 \cdot 1}$

$= \frac{6 + \sqrt{36 - 28}}{2}$ $\vee$ $\frac{6 - \sqrt{8}}{2}$

$= \frac{6 + 2\sqrt{2}}{2} = 3 + \sqrt{2}$ $\quad \frac{6 - 2\sqrt{2}}{2} = 3 - \sqrt{2}$

$(4{,}4, 0)$ $\quad (1{,}6, 0)$

titik puncak x dan y

$x_p = \frac{-b}{2a} = \frac{6}{2} = 3$

$y_p = y = (3)^2 - 6(3) + 7$

$= 9 - 18 + 7$

$= -9 + 7$

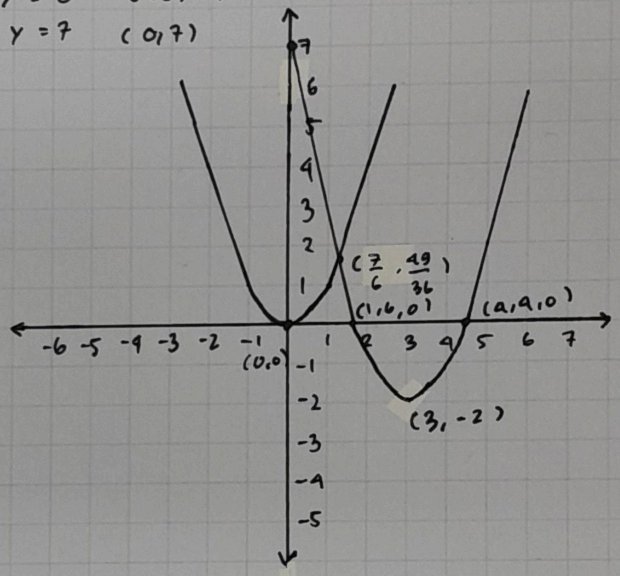
$= -2$

$(3, -2)$

titik potong sumbu $y \Rightarrow x = 0$

$y = 0^2 - 6(0) + 7$

$y = 7 \quad (0, 7)$



perpotongan antar grafik

$x^2 = x^2 - 6x + 7$

$0 = -6x + 7$

$6x = 7$

$x = \frac{7}{6} \approx 1{,}167$

$y = x^2$

$y = \left(\frac{7}{6}\right)^2$

$= \frac{49}{36} \approx 1{,}36$

$(1{,}167 \;,\; 1{,}36)$