Tugas 3 Kalkulus

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1)a. $F(x) = \sqrt{9-x}$ $R_f = y = 0$

$D_f = 9(x) \geq 0$

$9 - x \geq 0$

$-x \geq -9$

$x \leq 9$

b. $F(x) = x^2 - 3x - 9$ ($a=1$, $b=-3$, $c=-9$)

$D_f = \mathbb{R}$

$R_f = a > 0 \rightarrow y \geq -\frac{D}{4a}$

$= -\frac{b^2 - 4ac}{4a} = \frac{(-3)^2 - 4.1.-9}{4a}$

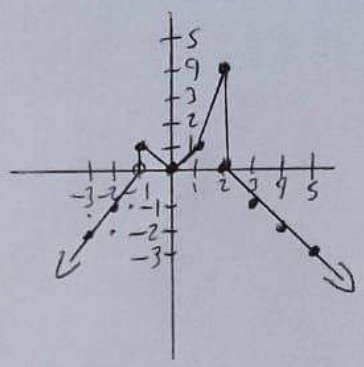
$= -\frac{25}{4} - y \geq -\frac{25}{4} = [-\frac{25}{4}, \infty)$

2.) $x^2, -1 \leq x < 2$

1. $x = 0 \rightarrow y = 0$
2. $x = 1 \rightarrow y = 1$
3. Puncak

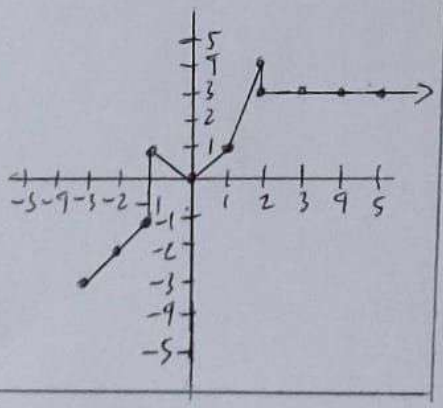
$\frac{-b}{2a} = 0$

$-\frac{D}{4a} = 0$



3.) $x^2, -1 < x < 2$

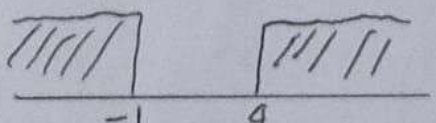
1. $x = 0 \rightarrow y = 0$
2. $x = 1 \rightarrow y = 1$
3. Puncak = $(0,0)$



b) a. $D_F = x \geq 9$ $D_g = x \leq -1$

$R_F = y \geq 0$ $R_g = y \geq 0$

$D_g \cap R_F \neq \{\}$



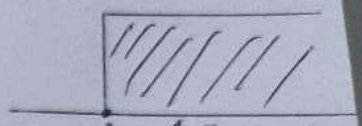
b. Tidak ada

∴ gof Tidak ada

4.) a. $D_f = x \geq 0$ $D_g = \mathbb{R}$

$R_f = y \geq 0$ $R_g = y \geq 0$

$D_F \cap R_g \neq \{\}$



∴ fog ada

b. $*(fog)(x) = \sqrt{(x)^2} = x$

$*(fog)(5) = 5$

$*D_{fog} = \{x \in D_g \mid g(x) \in D_f\}$

$= \{x = \mathbb{R} \mid x^2 \geq 0\} = \mathbb{R}$

$*R_{fog} = \{y \in R_f \mid y = f(t) + \in R_g\}$

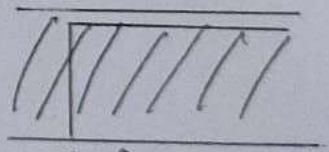
$= \{y \geq 0 \mid y = \sqrt{t}\ \sqrt{t} \geq 0\}$

$= [0, \infty)$

5.) a.) $D_F = \mathbb{R}$ $D_g = \mathbb{R}$

$R_F = y \geq 0$ $R_g = \mathbb{R}$

$D_g \cap R_F \neq \{\}$



∴ gof ada

b. $*gof(x) = x^2 - 1$

$*gof(2) = 2^2 - 1 = 3$

$*D_{gof} = \{x \in D_F \mid F(x) \in D_g\}$

$= \{x = \mathbb{R} \mid x^2 = \mathbb{R}) = \mathbb{R}$

$*R_{gof} = \{y \in R_g \mid y = g(t) + \in R_F\}$

$= \{y = \mathbb{R} \mid y = +-1, t \geq 0\}$

$= [-1, \infty\}$