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No

Date

I. Tentukan domain dan grafik fungsi berikut.

a. $f(x,y) = \frac{\sqrt{25-x^2-y^2}}{x}$

d. $f(x,y) = \sqrt{\frac{x-y}{x+y}}$

b. $f(x,y) = x\sqrt{25-x^2-y^2}$

e. $f(x,y) = \frac{x^2-y^2}{x-y}$

c. $f(x,y) = \frac{x}{\sqrt{25-x^2-y^2}}$

f. $f(x,y) = \frac{x+y}{xy}$

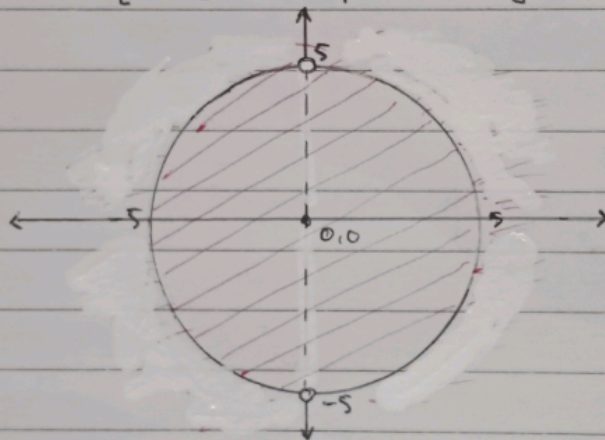
g. $f(x,y) = \frac{x}{|y|}$

\Rightarrow

a. $f(x,y) = \frac{\sqrt{25-x^2-y^2}}{x}$

\Rightarrow

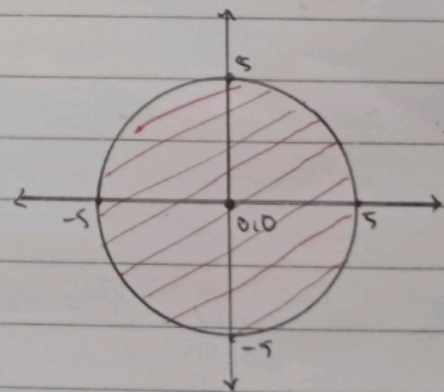
$$D_f = \{(x,y) \in \mathbb{R}^2 \mid 25-x^2-y^2 \geq 0 \text{ dan } x \neq 0\}$$
$$= \{(x,y) \in \mathbb{R}^2 \mid x^2+y^2 \leq 25 \text{ dan } x \neq 0\}$$



b. $f(x,y) = x\sqrt{25-x^2-y^2}$

\Rightarrow

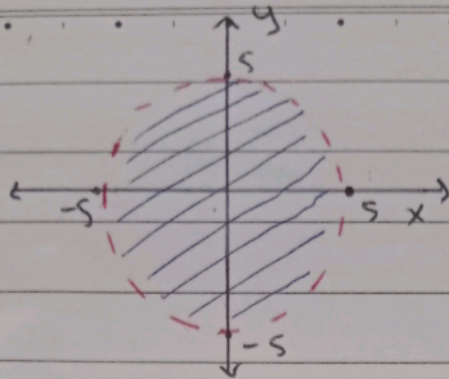
$$D_f = \{(x,y) \in \mathbb{R}^2 \mid 25-x^2-y^2 \geq 0\}$$
$$= \{(x,y) \in \mathbb{R}^2 \mid x^2+y^2 \leq 25\}$$



c. $f(x,y) = \frac{x}{\sqrt{25-x^2-y^2}}$

\Rightarrow

$$D_f = \{(x,y) \in \mathbb{R}^2 \mid 25-x^2-y^2 \geq 0 \text{ dan } 25-x^2-y^2 \neq 0\}$$
$$= \{(x,y) \in \mathbb{R}^2 \mid 25-x^2-y^2 > 0\}$$
$$= \{(x,y) \in \mathbb{R}^2 \mid x^2+y^2 < 25\}$$



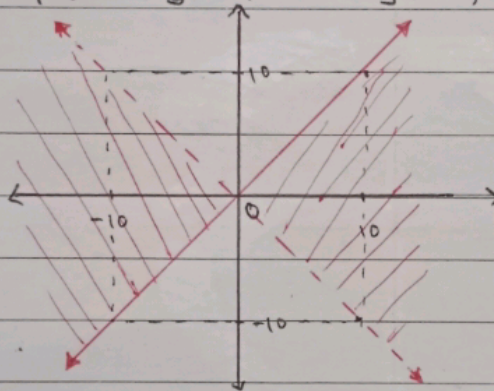
d. $F(x,y) = \sqrt{\frac{x-y}{x+y}}$

\Rightarrow

$$D_F = \{(x,y) \in \mathbb{R}^2 \mid \frac{x-y}{x+y} \geq 0 \text{ dan } x+y \neq 0\}$$

$$= \{(x,y) \in \mathbb{R}^2 \mid (x-y \geq 0 \text{ dan } x+y > 0) \text{ atau } (x-y \leq 0 \text{ dan } x+y < 0)\}$$

$$= \{(x,y) \in \mathbb{R}^2 \mid (x \geq y \text{ dan } x+y > 0) \text{ atau } (x \leq y \text{ dan } x+y < 0)\}$$

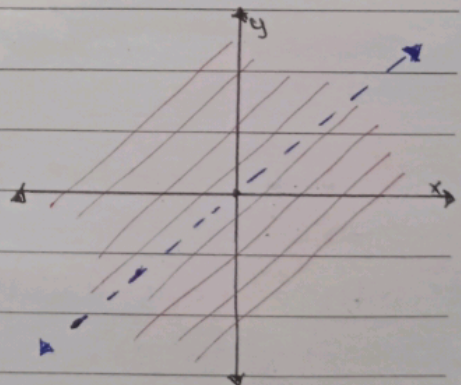


e. $f(x,y) = \frac{x^2-y^2}{x-y}$

\Rightarrow

$$D_f = \{(x,y) \in \mathbb{R}^2 \mid x-y \neq 0\}$$

$$= \{(x,y) \in \mathbb{R}^2 \mid x \neq y\}$$

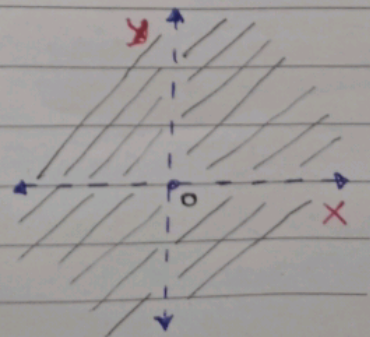


f. $f(x,y) = \frac{x+y}{xy}$

\Rightarrow

$$D_f = \{(x,y) \in \mathbb{R}^2 \mid xy \neq 0\}$$

$$= \{(x,y) \in \mathbb{R}^2 \mid x \neq 0 \text{ dan } y \neq 0\}$$



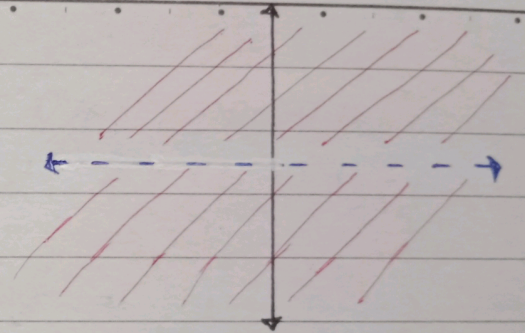
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$$9. \quad f(x, y) = \frac{x}{|y|}$$

\Rightarrow

$$\begin{aligned} D_f &= \{(x, y) \in \mathbb{R}^2 \mid |y| \neq 0\} \\ &= \{(x, y) \in \mathbb{R}^2 \mid y \neq 0\} \end{aligned}$$



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2. Tentukan grafik fungsi ini :

a. $F(x,y) = 4x + 8y - 16$

b. $F(x,y) = 3x^2 + 5y^2$

c. $F(x,y) = \sqrt{25 - x^2 - y^2}$

\Rightarrow

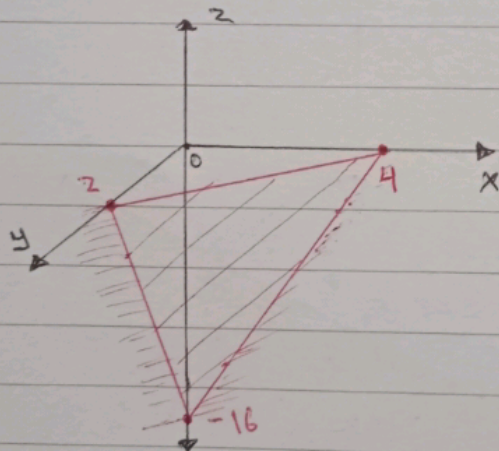
a. $F(x,y) = 4x + 8y - 16$

\Rightarrow

Titik potong pada sumbu

$$z = 4x + 8y - 16$$

x	y	z
0	0	-16
4	0	0
0	2	0

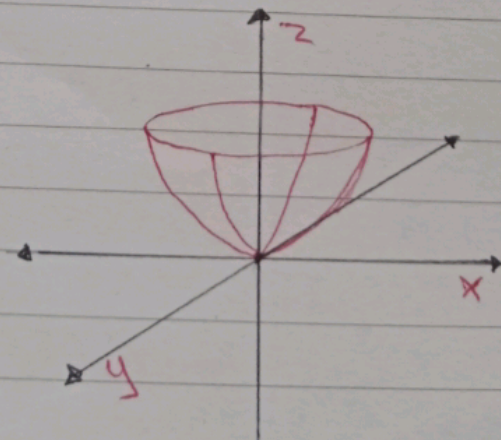


b. $F(x,y) = 3x^2 + 5y^2$

$$\Rightarrow z = 3x^2 + 5y^2$$

$$z = \frac{x^2}{1/3} + \frac{y^2}{1/5}$$

Paraboloida eliptik



$$c. f(x,y) = \sqrt{25 - x^2 - y^2}$$

\Rightarrow

$$z^2 = 25 - x^2 - y^2$$

Bola z positif

$$x^2 + y^2 + z^2 = 25$$

