49. $A = \dfrac{x^2-9}{|x|-3}$.

(а) Прли $|x|-3 \neq 0$

$|x| \neq 3$

$x \neq 3$ $\quad x \neq -3$

$A_f = R - \{3, -3\}$.

(в) $A = \dfrac{x^2-9}{|x|-3} = \dfrac{|x|^2-9}{|x|-3} = \dfrac{(|x|-3)(|x|+3)}{|x|-3}$

$A = |x|+3$

(в) $A < 7 \Rightarrow |x|+3 < 7$

$|x| < 4 \quad -4 < x < 4$

38. (Γ) $|2x+y-3|+|3x-y-2|=0$

$|x|+|y|=0$

$\Leftrightarrow x=y=0$

$$\begin{cases} 2x+y-3=0 \\ 3x-y-2=0 \end{cases} \Rightarrow y=3-2x$$

$3x-(3-2x)-2=0$

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

$5x-5=0$

$x=1$

$y=1.$

40. (Β) Νδο $|a|+\left|\frac{1}{a}\right|\geq 2.$

$|a|+\frac{1}{|a|}\geq 2.$

$|a|^2+1\geq 2|a|$

$|a|^2-2|a|+1\geq 0$

$(|a|-1)^2\geq 0$

ισχύει

$a=1$ το

$a=-1$ "

$\Leftrightarrow 1$

50. $A = \dfrac{|x|^3 - 2x^2}{|x| - 2}$

(01) Pentru $|x| - 2 \neq 0 \Rightarrow |x| \neq 2$

$x \neq 2 \qquad x \neq -2$

$A_f = \mathbb{R} - \{2, -2\}$.

(13) $A = \dfrac{|x|^3 - 2|x|^2}{|x| - 2} = \dfrac{|x|^2(|x| - 2)}{|x| - 2}$

$A = |x|^2$

10. i) $|A| = \frac{1}{2} \Rightarrow |x^2| = \frac{1}{2}$

$x^2 = \frac{1}{2} \Rightarrow x = \pm\sqrt{\frac{1}{2}}$

ii). $|A| < \frac{1}{3}$.

$x^2 < \frac{1}{3} \Rightarrow x^2 < \sqrt{\frac{1}{3}}^2 \qquad |x| < \sqrt{\frac{1}{3}}$

41. (B) $\left|\frac{a}{a^2+9}\right| \leq \frac{1}{6}$

$$\frac{|a|}{|a^2+9|} \leq \frac{1}{6}$$

$$\frac{|a|}{a^2+9} \leq \frac{1}{6}$$

$$6|a| \leq a^2+9$$

$$0 \leq a^2 - 6|a| + 9$$

$$0 \leq |a|^2 - 6|a| + 9$$

$$0 \leq (|a|-3)^2$$

✓

46. Av $\left|\frac{3a+1}{a+3}\right| < 1$ vdo $|a| < 1$

$$\frac{|3a+1|}{|a+3|} < 1$$

$$|3a+1| < |a+3|$$

$$|3a+1|^2 < |a+3|^2$$

$$(3a+1)^2 < (a+3)^2$$

$$9a^2 + 6a + 1 < a^2 + 6a + 9$$

$$a^2 < B^2 \iff |a| < |B|$$

$$8a^2 < 8$$

$$a^2 < 1$$

$$a^2 < 1^2$$

$$|a| < |1|$$

$$\underline{|a| < 1}$$

Пробник

$$\frac{|x|^3 - 1}{|x|^2 - 4|x| + 3} =$$

$$= \frac{(|x| - 1)(|x|^2 + |x| + 1)}{(|x| - 3)(|x| - 1)}.$$

$$\Delta = 16 - 12 = 4$$

$$|x| = \frac{4 \pm 2}{2} \begin{cases} |x| = 3 \\ |x| = 1 \end{cases}$$