

Task 26

$f(x) = -3x + 2$ f ke upatuzes 4

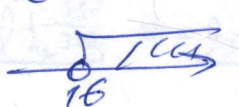
$-3x + 2 \leq 4 \Leftrightarrow -3x \leq 2 \Leftrightarrow x \geq -\frac{2}{3}$

 $S = [-\frac{2}{3}; +\infty)$

Task 27

$f(x) = \frac{6-x}{5} + 2$ $f(x)$ - asjuzetno.

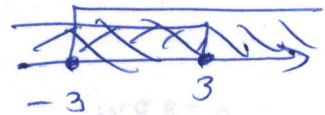
$\frac{6-x}{5} + 2 < 0 \Leftrightarrow 6-x+10 < 0 \Leftrightarrow -x < -16 \Leftrightarrow x > 16$

 $S = (16; +\infty)$

Task 28

$f(x) = \sqrt{3-x} + \sqrt{x+3}$

$\begin{cases} 3-x \geq 0 \\ x+3 \geq 0 \end{cases} \Leftrightarrow \begin{cases} x \leq 3 \\ x \geq -3 \end{cases}$



$D = [-3; 3]$

Task 29

$f(x) = 5x - 1$, $g(x) = 2x + 4$ $f \leq 3g$

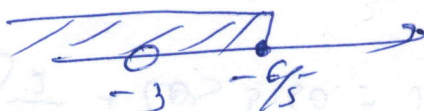
$5x - 1 \leq 3(2x + 4) \Leftrightarrow 5x - 1 \leq 6x + 12 \Leftrightarrow -x \leq 13 \Leftrightarrow x \geq -13$

 $S = [-13; +\infty)$

Task 30

$f(x) = \sqrt{-5x-6} + \frac{2}{x+3}$

$\begin{cases} -5x-6 \geq 0 \\ x+3 \neq 0 \end{cases} \Leftrightarrow \begin{cases} -5x \geq 6 \\ x \neq -3 \end{cases} \Leftrightarrow \begin{cases} x \leq -\frac{6}{5} \\ x \neq -3 \end{cases}$



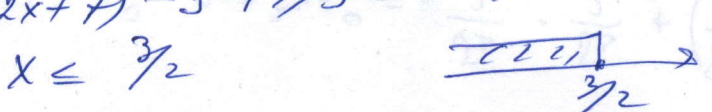
$D = (-\infty; -3) \cup (-\frac{6}{5}; +\infty)$

Task 31

$f(x) = -2x + 7$ $2f(x) - 3f(3) \geq f(1)$

$f(3) = -2 \cdot 3 + 7 = 1$; $f(1) = -2 \cdot 1 + 7 = 5$

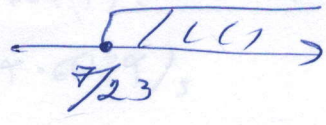
$2(-2x + 7) - 3 \cdot 1 \geq 5 \Leftrightarrow -4x + 14 \geq 8 \Leftrightarrow -4x \geq -6$

$x \leq \frac{3}{2}$  $S = (-\infty; \frac{3}{2}]$

УРС 32.

$$\frac{2x-3}{5} + \frac{3x+1}{4} \geq 0 \Leftrightarrow 4(2x-3) + 5(3x+1) \geq 0$$

$$8x - 12 + 15x + 5 \geq 0 \Leftrightarrow 23x \geq 7 \Leftrightarrow x \geq \frac{7}{23}$$



$$S = [\frac{7}{23}; +\infty)$$

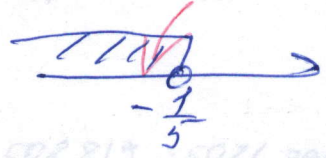
УРС 33.

$$\frac{2x+1}{3} - \frac{3x-1}{2} > 1$$

Нерав. реше

$$2(2x+1) - 3(3x-1) > 6$$

$$4x + 2 - 9x + 3 > 6 \Leftrightarrow -5x > 1 \Leftrightarrow x < -\frac{1}{5}$$



$$S = (-\infty; -\frac{1}{5})$$

Нерав. реше $x = -1$

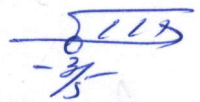
УРС 34.

$$f(x) = -3x + 4, g(x) = 2x + 7$$

$f(x) - g(x)$ не полож.

$$(-3x + 4) - (2x + 7) \leq 0 \Leftrightarrow -3x + 4 - 2x - 7 \leq 0$$

$$-5x \leq 3 \Leftrightarrow x \geq -\frac{3}{5}$$



$$S = (-\frac{3}{5}; +\infty)$$

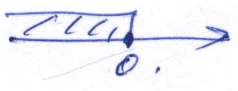
УРС 35.

$$f(x) = \sqrt{2(3x-1) - 7x + 2}$$

$$D: 2(3x-1) - 7x + 2 \geq 0$$

$$6x - 2 - 7x + 2 \geq 0$$

$$-x \geq 0 \quad | :(-1) \Leftrightarrow x \leq 0$$



$$D = (-\infty; 0]$$

УРС 36.

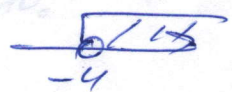
$$f(x) = \frac{6-x}{5} - 2$$

$f(x)$ отрицат.

$$\frac{6-x}{5} - 2 < 0$$

$$6 - x - 10 < 0 \Leftrightarrow -x < 4 \quad | :(-1)$$

$$x > -4$$



$$S = (-4; +\infty)$$

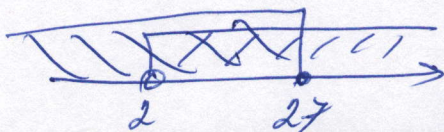
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Task 37

$$\begin{cases} \frac{6-3x}{5} < \frac{5}{5} \\ \frac{6-3x}{5} > -15 \end{cases}$$

$$\Leftrightarrow \begin{cases} 6-3x < 0 \\ 6-3x > -75 \end{cases}$$

$$\Leftrightarrow \begin{cases} -3x < -6 \\ -3x > -81 \end{cases} \Leftrightarrow \begin{cases} x > 2 \\ x \leq 27 \end{cases}$$



$$S = (2; 27]$$

Task 38

$$f(x) = 3x - 4 \quad x > f$$

$$x > 3x - 4 \Leftrightarrow -2x > -4 \Leftrightarrow x < 2$$

$$S = (-\infty; 2)$$

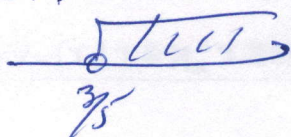
Task 39

$$f(x) = -2x + 3, \quad g(x) = 3x - 2$$

$$2f(x) + 3g(x) > 3$$

$$2(-2x + 3) + 3(3x - 2) > 3$$

$$-4x + 6 + 9x - 6 > 3 \Leftrightarrow 5x > 3 \Leftrightarrow x > \frac{3}{5}$$



$$S = (\frac{3}{5}; +\infty)$$

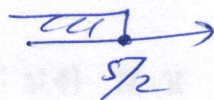
Task 40

$$f(x) = \sqrt{3 - 2(x-1)}$$

$$\text{D: } 3 - 2(x-1) \geq 0 \Leftrightarrow 3 - 2x + 2 \geq 0$$

$$-2x \geq -5 \Leftrightarrow x \leq \frac{5}{2}$$

$$D = (-\infty; \frac{5}{2}]$$



Task 41

$$f(x) = -\frac{x-8}{4} + 1 \quad \text{D: } f(x) > 0$$

$$-\frac{x-8}{4} + 1 > 0 \Leftrightarrow -(x-8) + 4 > 0$$

$$-x > -12 \Leftrightarrow x < 12$$

необходимо цел. чис. $x = 10$.

необходимо
целое число

$$\Leftrightarrow -x + 8 + 4 > 0$$

$$S = (-\infty; 12)$$

Task 42

$$f(x) = -2x + 1$$

$$f \geq 2$$

необходимо целое?

$$-2x + 1 \geq 2$$

$$-2x \geq 1 / (-2)$$

$$x \leq -\frac{1}{2}$$

необходимо цел. $x = -1$



$$S = (-\infty; -\frac{1}{2}]$$

Тест 43

$$f(x) = 3(2x-5) + 2x$$

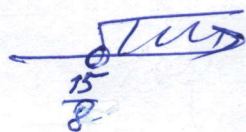
$$f > 0$$

$$3(2x-5) + 2x > 0$$

$$\Leftrightarrow 6x - 15 + 2x > 0 \Leftrightarrow$$

$$\Leftrightarrow 8x > 15 \Leftrightarrow$$

$$x > \frac{15}{8}$$



$$S = \left(\frac{15}{8}; +\infty\right)$$

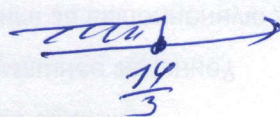
Тест 44

$$f(x) = 2x - 7, \quad x \geq 2f$$

$$x \geq 2(2x - 7) \Leftrightarrow x \geq 4x - 14 \Leftrightarrow$$

$$\Leftrightarrow 3x \leq 14 \Leftrightarrow x \leq \frac{14}{3}$$

$$S = (-\infty; \frac{14}{3}]$$



Тест 45

$$A = \{x \in \mathbb{R} \mid -x + 7 \geq 3\}$$

card(A ∩ N)

$$-x + 7 \geq 3 \Leftrightarrow -x \geq -4 \Leftrightarrow x \leq 4$$



$$A = (-\infty; 4]$$

$$A \cap N = \{0, 1, 2, 3, 4\}$$

$$\text{card}(A \cap N) = 5$$

Тест 46

$$f(x) = -4x + 3$$

Наибольшее целое - ?

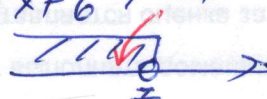
$$2f(x) > f(2) + 4$$

$$f(2) = -8 + 3 = -5$$

$$2(-4x + 3) > -5 + 4 \Leftrightarrow -8x + 6 > -1 \Leftrightarrow -8x > -7 \Leftrightarrow$$

$$-8x > -7 \Leftrightarrow -8x > -7 \Leftrightarrow$$

$$\Leftrightarrow x < \frac{7}{8}$$



$$S = (-\infty; \frac{7}{8})$$

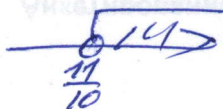
Наибольшее целое $x = 0$.

Тест 47

$$f(x) = \frac{1+x}{\sqrt{3-2(7-5x)}}$$

$$D: 3 - 2(7-5x) > 0 \Leftrightarrow 3 - 14 + 10x > 0 \Leftrightarrow 10x > 11 \Leftrightarrow$$

$$\Leftrightarrow x > \frac{11}{10}$$



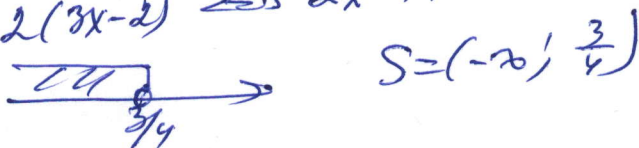
$$S = \left(\frac{11}{10}; +\infty\right)$$

Exerc 48

$$f(x) = 2x - 1, g(x) = 3x - 2$$

$$f > 2g$$

$$2x - 1 > 2(3x - 2) \Leftrightarrow 2x - 1 > 6x - 4 \Leftrightarrow -4x > -3 \Leftrightarrow x < \frac{3}{4}$$



Exerc 49

$$f(x) = 2(x-3) + 5(1-x), g(x) = 3(2x-5)$$

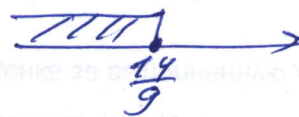
$$f(x) \geq g(x)$$

$$2(x-3) + 5(1-x) \geq 3(2x-5)$$

$$2x - 6 + 5 - 5x \geq 6x - 15$$

$$-3x \geq -14 \Leftrightarrow x \leq \frac{14}{3}$$

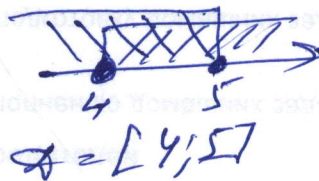
$$S = (-\infty; \frac{14}{3}]$$



Exerc 50

$$f(x) = \sqrt{5-x} + \sqrt{x-4}$$

$$\text{D: } \begin{cases} 5-x \geq 0 \\ x-4 \geq 0 \end{cases} \Leftrightarrow \begin{cases} x \leq 5 \\ x \geq 4 \end{cases}$$

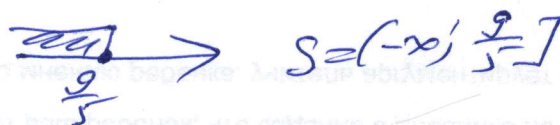


Exerc 51

$$f(x) = 3x - 1, g(x) = 2x + 3$$

$$3f \leq 2g$$

$$3(3x-1) \leq 2(2x+3) \Leftrightarrow 9x-3 \leq 4x+6 \Leftrightarrow 5x \leq 9 \Leftrightarrow x \leq \frac{9}{5}$$

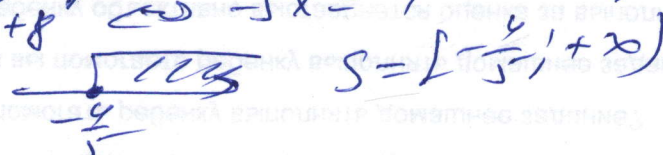


Exerc 52

$$f(x) = -3x + 4, g(x) = 2x + 8 \quad f(x) < g(x)$$

$$-3x + 4 < 2x + 8$$

$$\Leftrightarrow -5x < 4 \Leftrightarrow x > -\frac{4}{5}$$



Exerc 53

$$f(x) = \sqrt{-2x+6} + \frac{4}{x+5}$$

$$\text{D: } \begin{cases} -2x+6 \geq 0 \\ x+5 \neq 0 \end{cases}$$

$$\Leftrightarrow \begin{cases} -2x \geq -6 \\ x \neq -5 \end{cases} \Leftrightarrow \begin{cases} x \leq 3 \\ x \neq -5 \end{cases}$$



$$D = (-\infty; -5) \cup (-5; 3]$$

№ 54

$$3) \frac{2x-1}{5} - \frac{3-x}{3} < 2$$

$$3(2x-1) - 5(3-x) < 30$$

$$6x-3-15+5x < 30$$

$$\Leftrightarrow 11x < 48 \Leftrightarrow x < \frac{48}{11}$$

$$\xrightarrow{\frac{48}{11}} S = (-\infty; \frac{48}{11})$$

№ 55

$$A = \{4x+7 \leq 2x+3\}$$

$$2x \leq 6 \quad x \leq 3$$

$$A = (-\infty; 3]$$

$$\xrightarrow{3}$$