Agzamxo’djayeva M.SH

Mavzu:Bir noma'lumli chiziqli tengsizliklar va bir noma'lumli chiziqli tengsizliklar sitemasini yechish.

Chiziqli tengsizlik

Ta’rif

$ax < b$; $ax > b$; $ax \leq b$; $ax \geq b$ ko‘rinishidagi tengsizliklar bir noma’lumli chiziqli tengsizliklar deyiladi,
bunda a va b — berilgan sonlar, x esa noma’lum son.

Tengsizlikni yeching. $\frac{2-3x}{5}-\frac{1-x}{3}\le 3+\frac{7-4x}{15}$

3 5 15 1

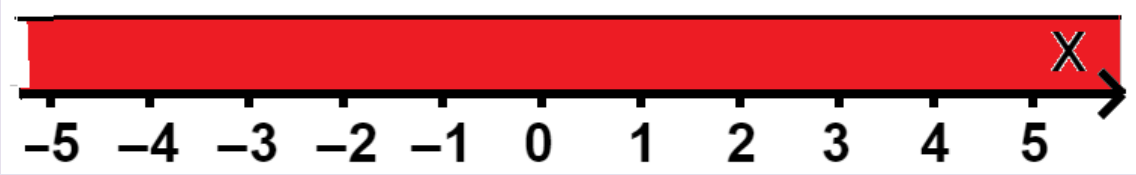
$\frac{2-3x}{5}-\frac{1-x}{3}\le 3+\frac{7-4x}{15}$ $\cdot 15$

$6-9x-5+5x\le 45+7-4x$

$-4x+4x\le 52-1$

$0\cdot x\le 51$

x o'rniga ixtiyoriy son qo'ysak ham tengsizlik to'g'ri bo'ladi shuning uchun javob: $x\in(-\infty;+\infty)$ bo'ladi.

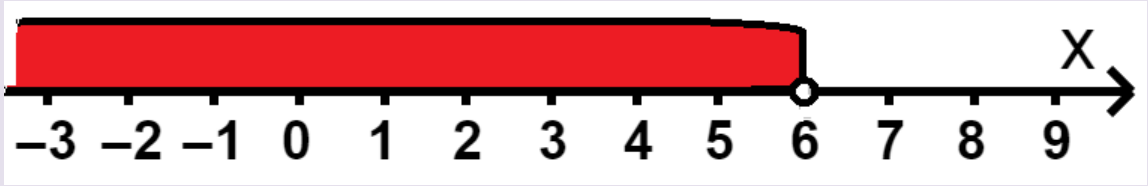


Tengsizlikni yeching. $f(x) = \sqrt{\frac{3}{6-x}}$ funksiyaning aniqlanish sohasiga tegishli natural sonlar nechta ?

$$\frac{3}{6-x} \geq 0$$

$$6 - x > 0$$

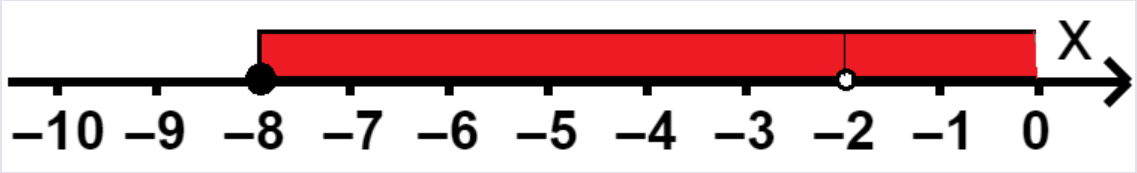
$x < 6$ $x \in (-\infty; 6)$ 1;2;3;4;5 Javob: 5 ta



Tengsizlikni yeching. Ushbu funksiyaning $f(x) = \frac{\sqrt{8+x}}{x+2}$ aniqlanish sohasini toping.

$x + 2 \neq 0$
$x \neq -2$

$8 + x \geq 0$
$x \geq -8$

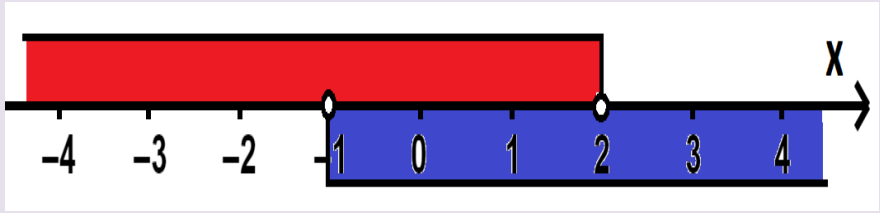


$Javob$: $x \in [-8; -2) \cup (-2; +\infty)$

1-misol

$$\begin{cases} x + 3 < 4 + 2x \\ 5x - 3 < 4x - 1 \end{cases}$$ tengsizlikning natural sonlarda nehta yechimi bor ?

Yechish:



$$\begin{cases} x > -1 \\ x < 2 \end{cases}$$

$x \in (-1; 2)$ *Javob: 1 ta*

2-misol

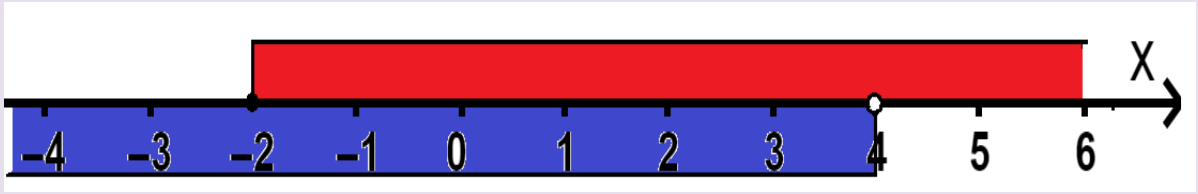
Funksiyani aniqlanish sohasini toping.

$$f(x) = \sqrt{\frac{7}{4-x}} + \sqrt{x+2}$$

Yechish:

$$\begin{cases} \frac{7}{4-x} \geq 0 \\ x+2 \geq 0 \end{cases} \Rightarrow \begin{cases} x < 4 \\ x \geq -2 \end{cases}$$

Javob: $x \in [-2; 4)$

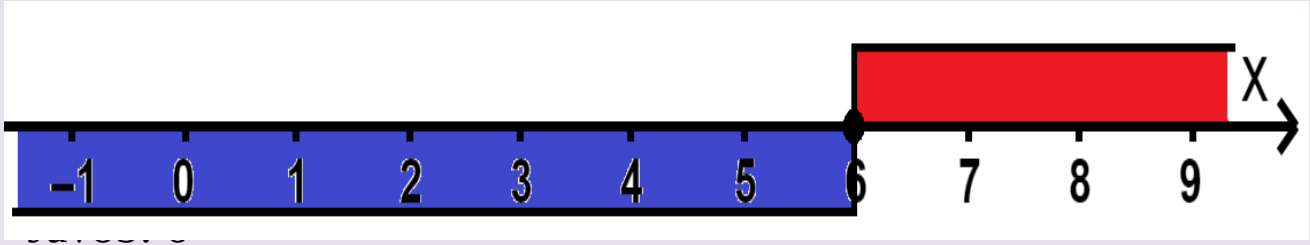


3-misol

Qo’sh tengsizlikni yeching. $3x - 1 \le 2x + 5 \le 4x - 7$

Yechish:

$$3x - 1 \le 2x + 5 \le 4x - 7 \Rightarrow \begin{cases} 3x - 1 \le 2x + 5 \\ 2x + 5 \le 4x - 7 \end{cases} \Rightarrow \begin{cases} x \le 6 \\ x \ge 6 \end{cases}$$



4-misol

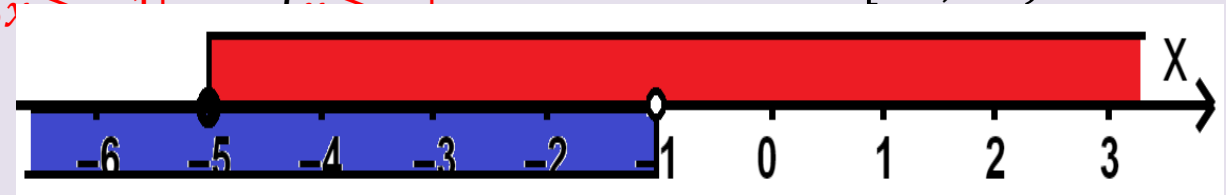
Tengsizliklar sistemasini yeching:

$$\begin{cases} 15x^2 - (3x-5)(5x+4) < 4x + 11 \\ (4x-1)(3x+2) - 12x^2 \geq 2x - 17 \end{cases}$$

$$\begin{cases} 15x^2 - 15x^2 - 12x + 25x + 20 < 4x + 11 \\ 12x^2 + 8x - 3x - 2 - 12x^2 \geq 2x - 17 \end{cases}$$

$$\begin{cases} 9x < -9 \\ 3x \dots \end{cases} \Rightarrow \begin{cases} x < -1 \\ x \dots \end{cases}$$

Javob: $x \in [-5; -1)$



5-misol

Ushbu $y = \frac{\sqrt{x+1}+\sqrt{x-2}}{\sqrt{x-3}-\sqrt{5-x}}$ funksiyaning aniqlanish sohasiga tegishli barcha butun sonlarning yig'indisini toping.

Yechish:

$$\begin{cases} x+1 \geq 0 \\ x-2 \geq 0 \\ x-3 \geq 0 \\ 5-x \geq 0 \end{cases} \quad \begin{cases} x \geq -1 \\ x \geq 2 \\ x \geq 3 \\ x \leq 5 \end{cases}$$

$\sqrt{x-3}-\sqrt{5-x} \neq 0$

$x \neq 4$

$x \in [3;4) \cup (4;5]$ $3+5=8$ Javob: 8