

Mavzu: Ko'rsatkichli tengsizliklar

8.42. Ko'rsatkichli tengsizliklarni yeching:

a) $\left(\frac{1}{2}\right)^{x^4-5x^2} > 2^{-8x^2+6};$ b) $4^x - 4 \cdot 2^x + 3 > 0;$

d) $3^{2(x+1)} - 5 \cdot 3^x + 2 < 0;$

e) $|5^x - 5| - |5^x - 4| \geq |5^x + 4| - 8;$

f) $a^{\frac{x-3}{x+1}} > a^{\frac{2x-1}{x+1}};$ g) $2^{x^2+4x+4} > 2;$

$$\text{h)} \quad 2^x \cdot 3^{x-2} \geq \frac{2}{3};$$

$$\text{i)} \quad \left(\frac{2}{3}\right)^x - 2^{x+1} \geq 3^{-x} - 2;$$

$$\text{j)} \quad 2^{x+4} + 3 \cdot 2^{x-2} \geq 67;$$

$$\text{k)} \quad 4^x - 5 \cdot 2^x + 4 \geq 0;$$

$$\text{l)} \quad 0,1^{4x^2-2x-2} \leq 0,1^{2x-3};$$

$$\text{m)} \quad \frac{2^{x-1}-1}{2^{x+1}+1} < 2;$$

$$\text{n)} \quad (0,3)^{2+4+6+\dots+2x} > (0,3)^{72}, \quad x \in \mathbb{N};$$

$$\text{o)} \quad 4^x - 2 \cdot 5^{2x} - 10^x > 0;$$

$$\text{p)} \quad \sqrt{9^x - 3^{x+2}} > 3^x - 9;$$

$$\text{q)} \quad x^2 \cdot 2^{2x} + 9(x+2) \cdot 2^x + 8x^2 \leq (x+2) \cdot 2^{2x} + 9x^2 \cdot 2^x + 8x + 16;$$

$$\text{r)} \quad \left(\frac{1}{3}\right)^{x+\frac{1}{2}-\frac{2}{x}} = \frac{1}{\sqrt{27}};$$

$$\text{s)} \quad 2^x + 2^{|x|} \geq 2\sqrt{2};$$

$$\text{t)} \quad 0,2^{\frac{2x-3}{x-2}} > 5;$$

$$\text{u)} \quad \left(\frac{1}{5}\right)^{\frac{2x+1}{1-x}} > \left(\frac{1}{5}\right)^{-3}.$$

Mavzu: Misollar yechish

5. Тенгсизликни ечинг:

$$1) 3^x > 81;$$

$$2) 0,5^x > 8;$$

$$3) (1/3)^x < 27;$$

$$4) 0,5^{x^2-4x} < 8;$$

$$5) 0,25^{x^2-3x} \geq 4;$$

$$6) 3^{x^2-8x+6} \leq \sqrt{3};$$

$$7) (1/2)^{x^2-3x+4} \leq (1/2)^{x+9};$$

$$8) (1/2)^{x^2-4x} < 1/4;$$

$$9) 10^{2x-4} > 10^{x^2-3x};$$

$$10) 3^{(x-3)/(x-2)} < 1/3;$$

$$11) (10\sqrt{3})^{x^2-45} \geq 0,81^x;$$

$$12) 0,8^{(3-2x)/(1-x)} > 16/25;$$

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$$13) 0,2^{(x^2+2)/(x^2-1)} > 25;$$

6. Тенгсизликни ечинг.

$$1) 0,5^x > 3;$$

$$2) 2^x > 3;$$

$$3) \sqrt{x^2(3/7)^{x^2-2x}} \geq 1;$$

$$4) 0,5^{\sqrt{2}} < 0,00625;$$

$$5) 0,3^{2x^2-3x+6} < 0,00243;$$

$$6) 3^{(x-3)/(x-2)+1} > 1/3;$$

$$7) (1/2)^{\sqrt{x^2+2x+1}} < (1/2)^{1-x};$$

$$8) \frac{0,2^{x-1,5}}{\sqrt{5}} < 5 \cdot 0,04^{x-1};$$

$$9) 7^{x^2-4x-2} > \frac{1}{49};$$

$$10) 0,5^{(x^2+x-2)(3-x)} > 1.$$

7. Тенгсизликни ечинг:

$$1) 4^x < 2^{x+1} + 3;$$

$$2) 3^{2x+5} \leq 3^{x+2} + 2;$$

$$3) 2^{2/x} + 4^{1/x+2} < 62;$$

$$4) 3^{2x} - 6 \cdot 3^x + 9 > 0;$$

$$5) 5 \cdot 2^{3x} - 24 \cdot 2^{5-3x} + 56 \leq 0;$$

$$6) 4^{1/x} - 2^{1/x+2} + 3 \leq 0;$$

$$7) 5^{2x} - 6 \cdot 5^x + 5 < 0;$$

$$8) 5^{2x+1} > 5^x + 4$$

$$9) 10 \cdot 0,3^{2x} \leq 1,3 \cdot 0,3^{x+1} - 0,027; \quad 10) 9^x < 8 \cdot 3^x + 9;$$

$$11) 12^{2x} - 6 \cdot 12^x - 72 > 0;$$

$$12) 4^{\sqrt{x+1}} - 2^{\sqrt{x+1}} - 2 < 0;$$

$$13) \frac{0,2^{x-0,5}}{\sqrt{5}} < 5 \cdot 0,04^{x-1};$$

$$14) 14 \cdot 5^x > 6 \cdot 5^x + 40;$$

$$15) 3^{2\sqrt{x-1}} - 10 \cdot 3^{\sqrt{x-1}} + 3 < 0;$$

$$16) 5^{2x} + 2 \cdot 5^x - 35 > 0.$$

8. Тенгсизликни ечинг:

$$1) (1/2)^{(x^4-2x^2+1)^{1/2}} < (1/2)^{1-x};$$

$$2) \frac{1}{2^x-1} > \frac{1}{1-2^{x-1}};$$

$$3) \frac{1}{3^x+5} < \frac{1}{3^{x+1}-1};$$

$$4) x^3 \cdot 3^x - 3^{x+3} \leq 0;$$

$$5) |x|^{x^2-x-2} < 1;$$

$$6) (x-3)^{x^2-7x} > 1;$$

$$7) (x^2-8x+8)^{x-0,2} < 1;$$

$$8) (3-x)^{(3x-5)/(3-x)} < 1;$$

9. Тенгсизликни ечинг:

$$1) 2,5^{1-x} > 2,5^{-3x};$$

$$2) 0,13^{x-4} \geq 0,13^{2-x};$$

$$3) \left(\frac{4}{3}\right)^{2x} \leq \left(\frac{3}{4}\right)^{x-1};$$

$$4) 3^{-4x} > \sqrt{3}.$$

$$5) 0,04^{3x-2} \geq 5^{2-x};$$

$$6) 8^{x-3} \leq 0,125^{2x};$$

$$7) 5^{x^2+3x+1,5} < 5\sqrt{5};$$

$$8) 0,2^{x^2-6x+7} \geq 1.$$