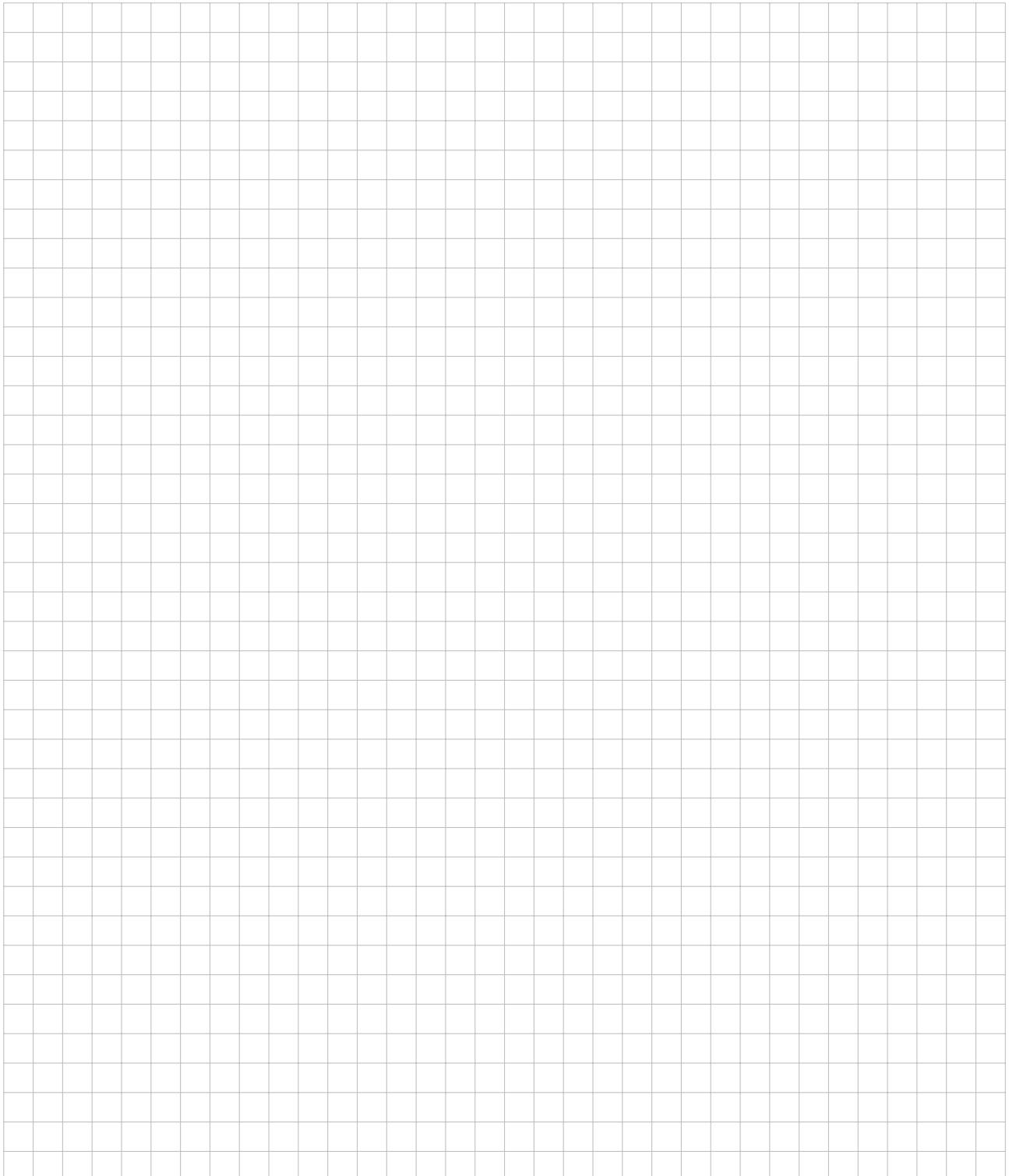


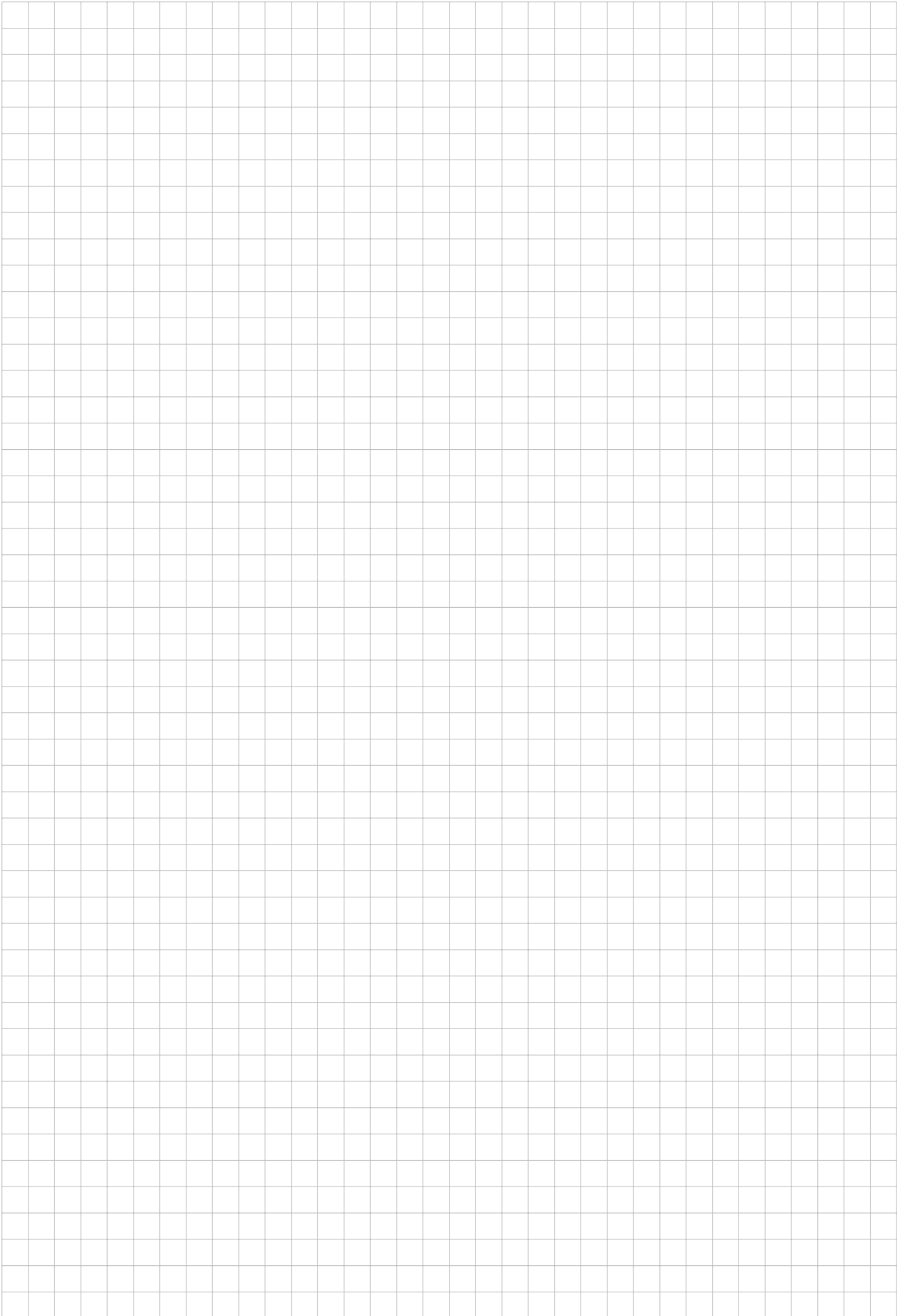
## Задачи к вебинару 19.11.2025

## Задание 1

Решите неравенство:

$$\frac{9^x + 2 \cdot 3^x - 117}{3^x - 27} \leq 1.$$

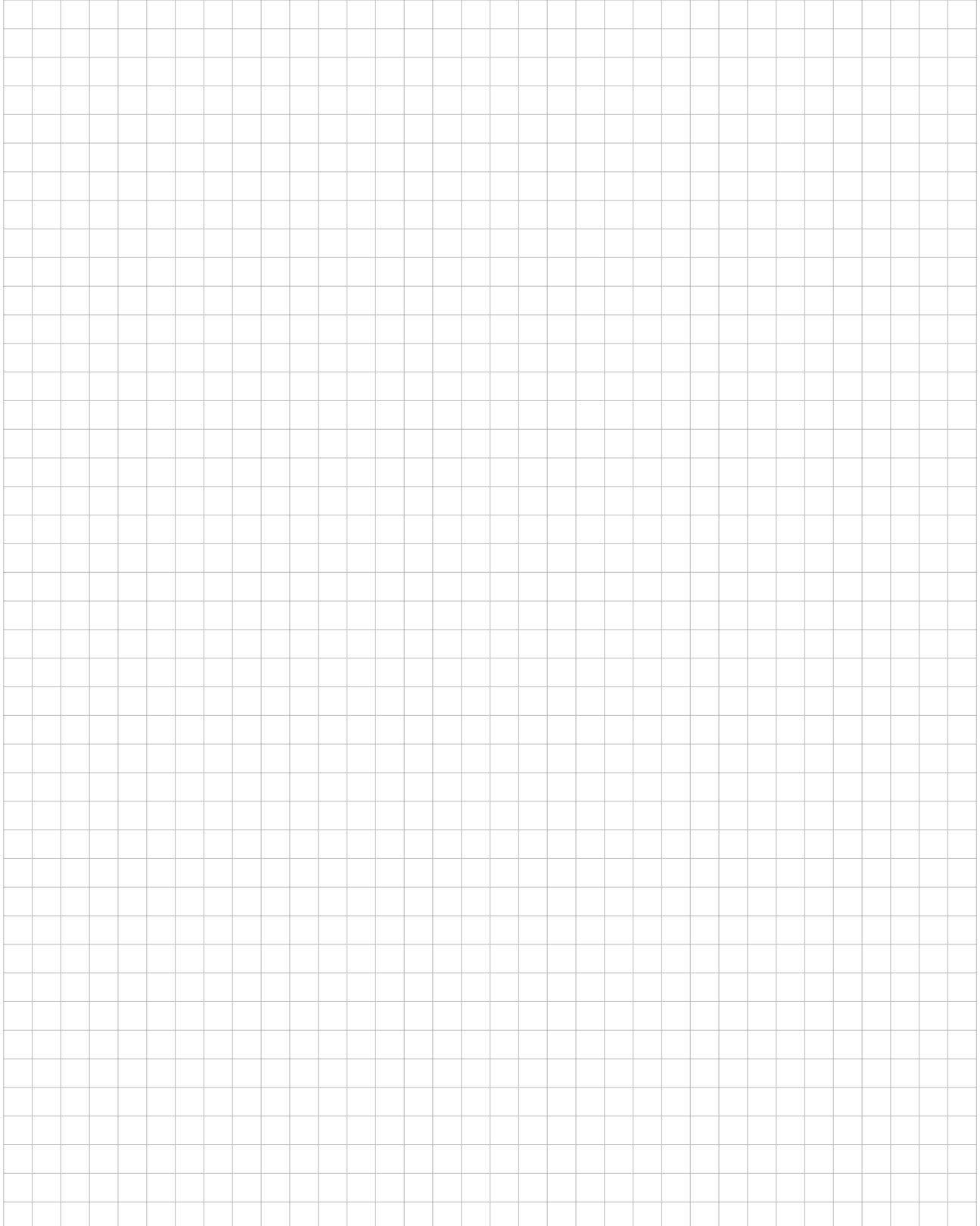


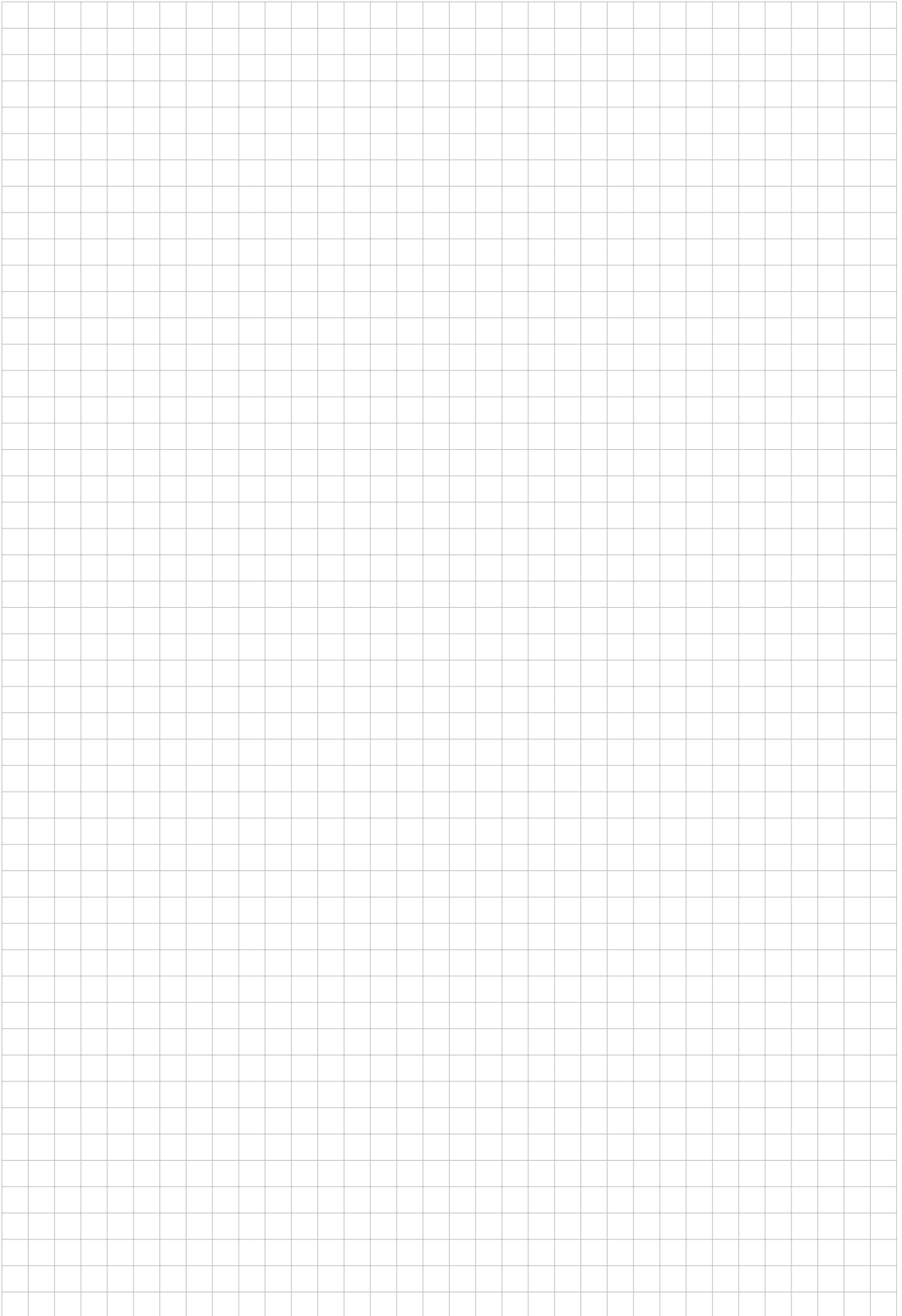


## Задание 2

Решите неравенство:

$$\frac{105}{(2^{4-x^2} - 1)^2} - \frac{22}{2^{4-x^2} - 1} + 1 \geq 0.$$



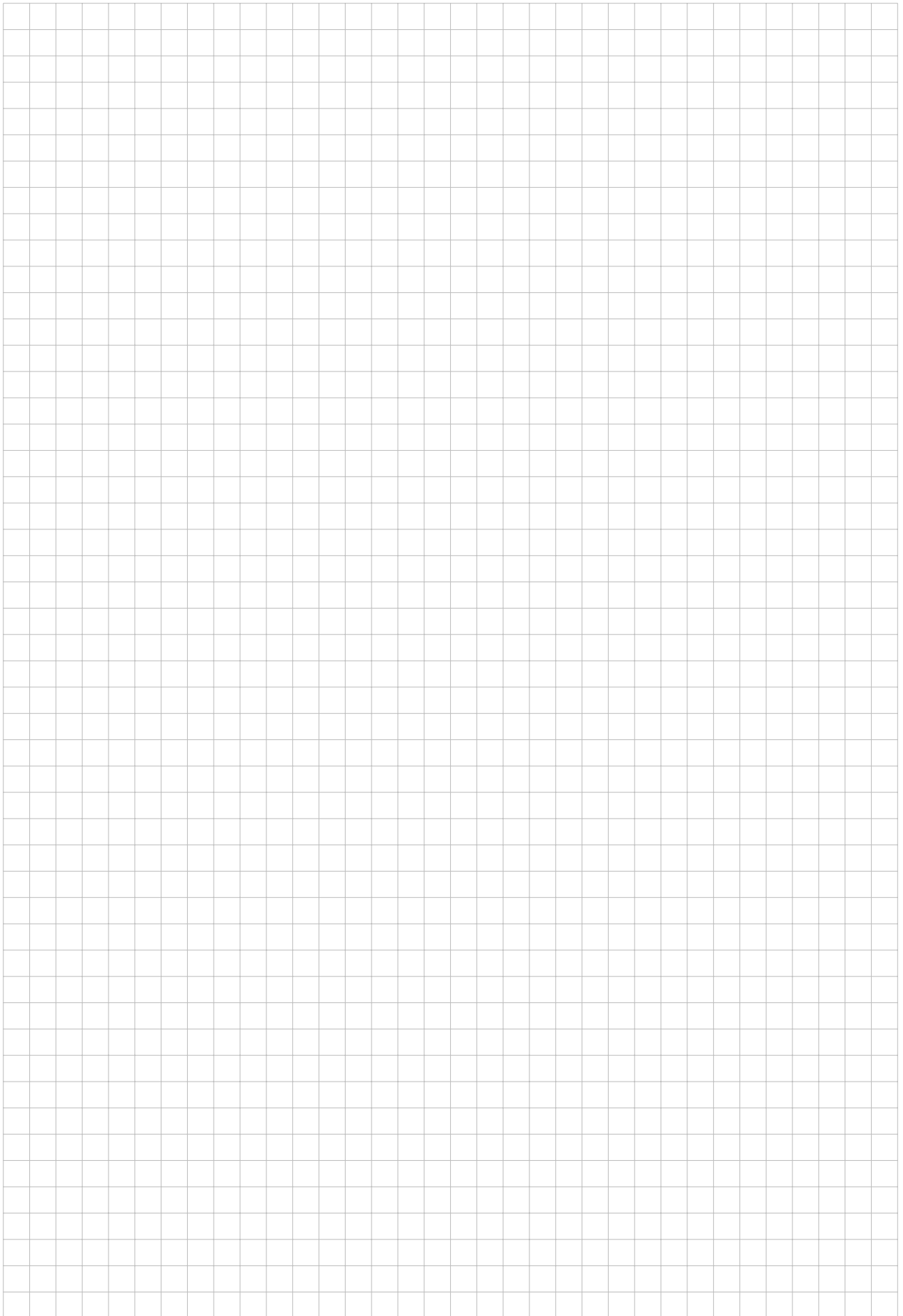


## Задание 3

Решите неравенство:

$$2^{|x|} - 6 - \frac{9 \cdot 2^{|x|} - 37}{4^{|x|} - 7 \cdot 2^{|x|} + 12} \leq \frac{1}{2^{|x|} - 4}.$$

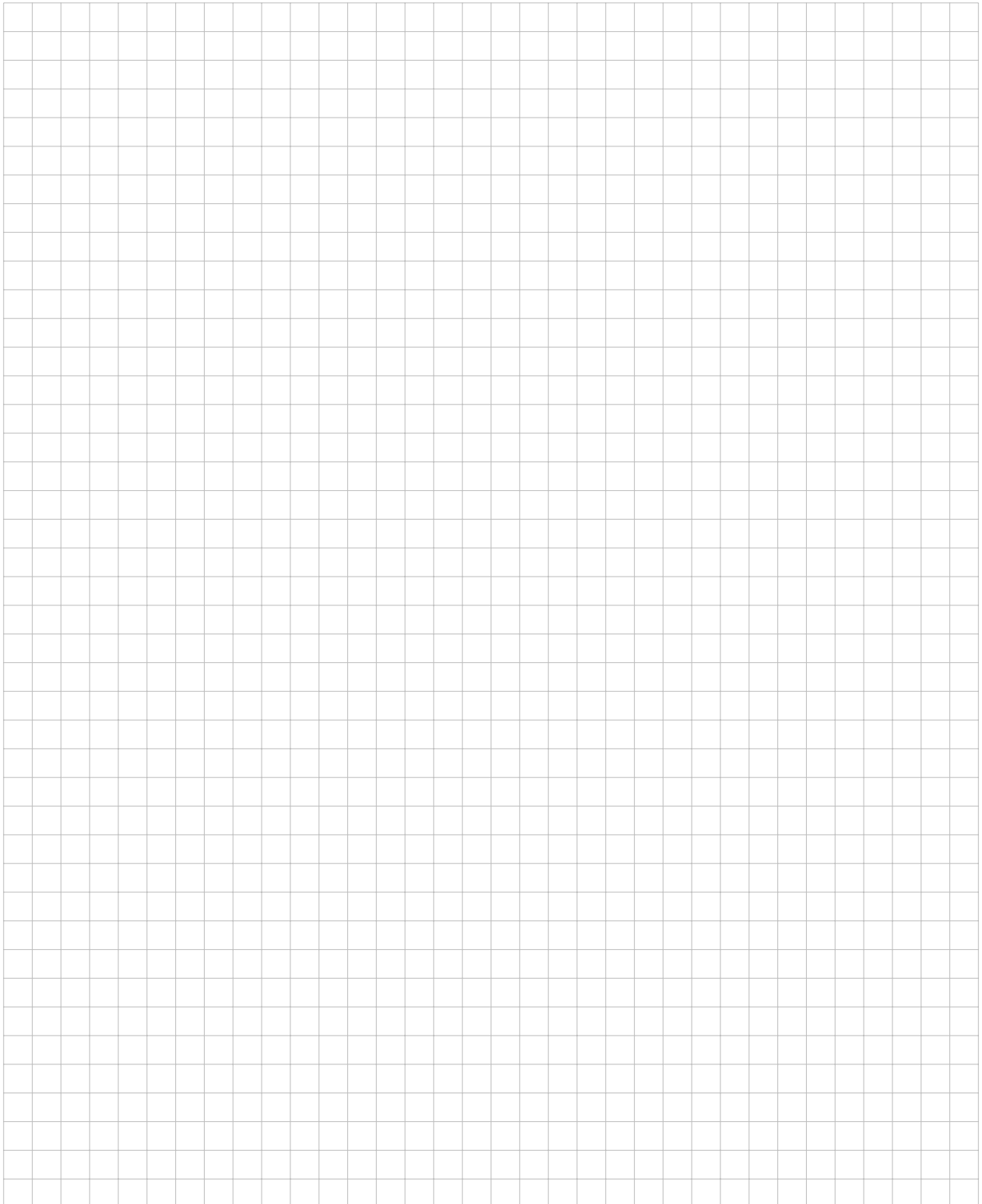


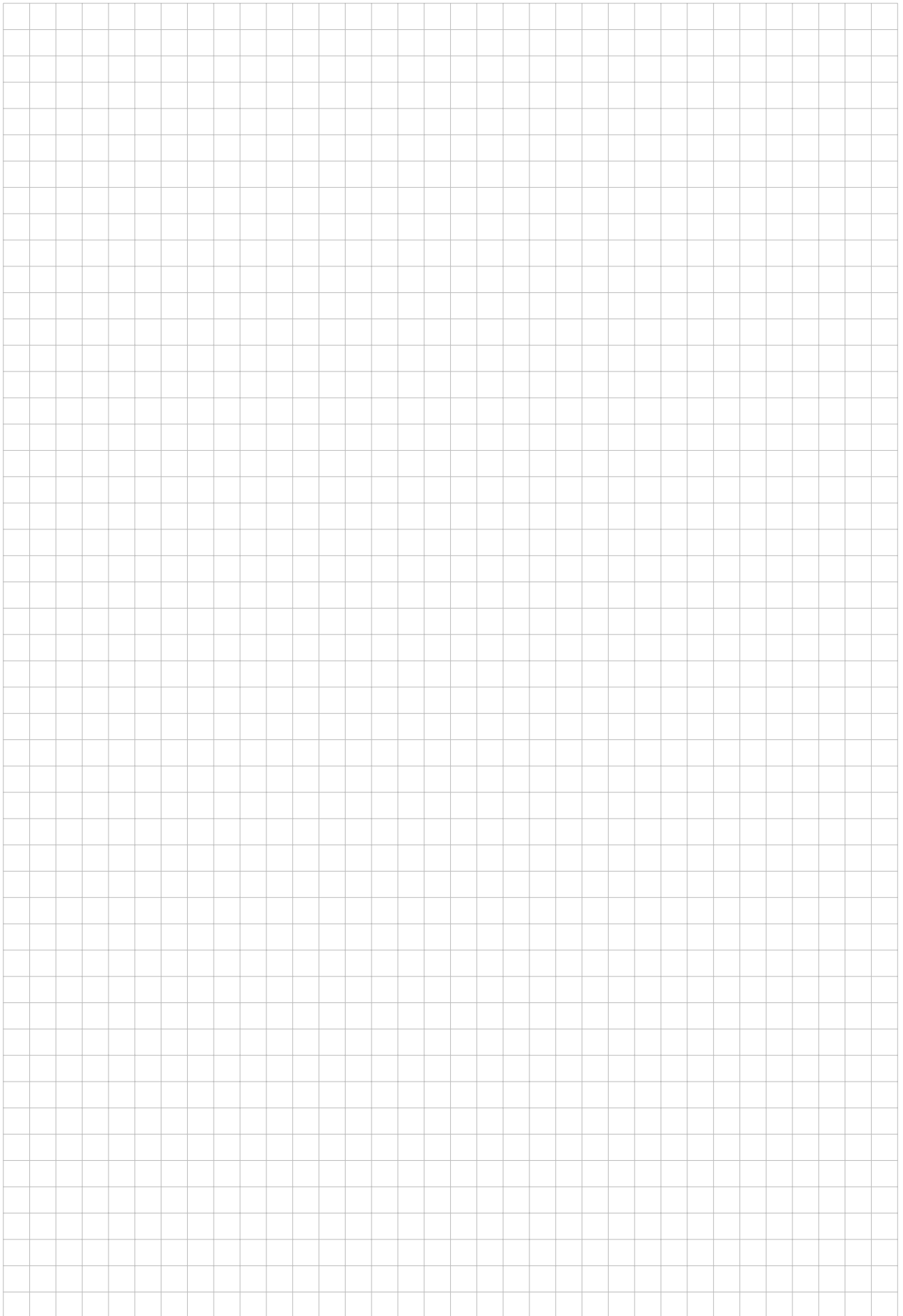


## Задание 4

Решите неравенство:

$$1 + \frac{6}{\log_3 x - 3} + \frac{5}{\log_3^2 x - \log_3(27x^6) + 12} \geq 0.$$

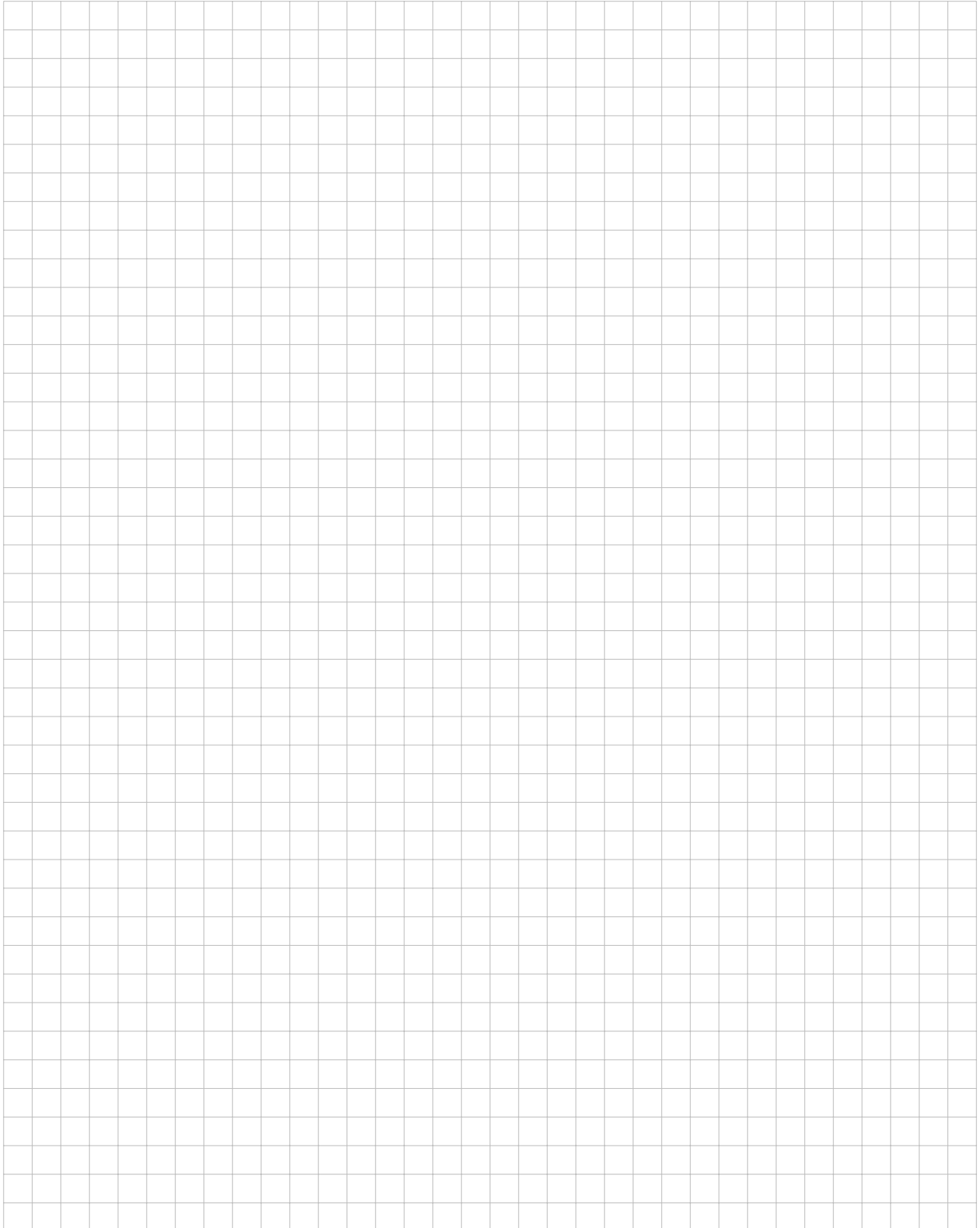


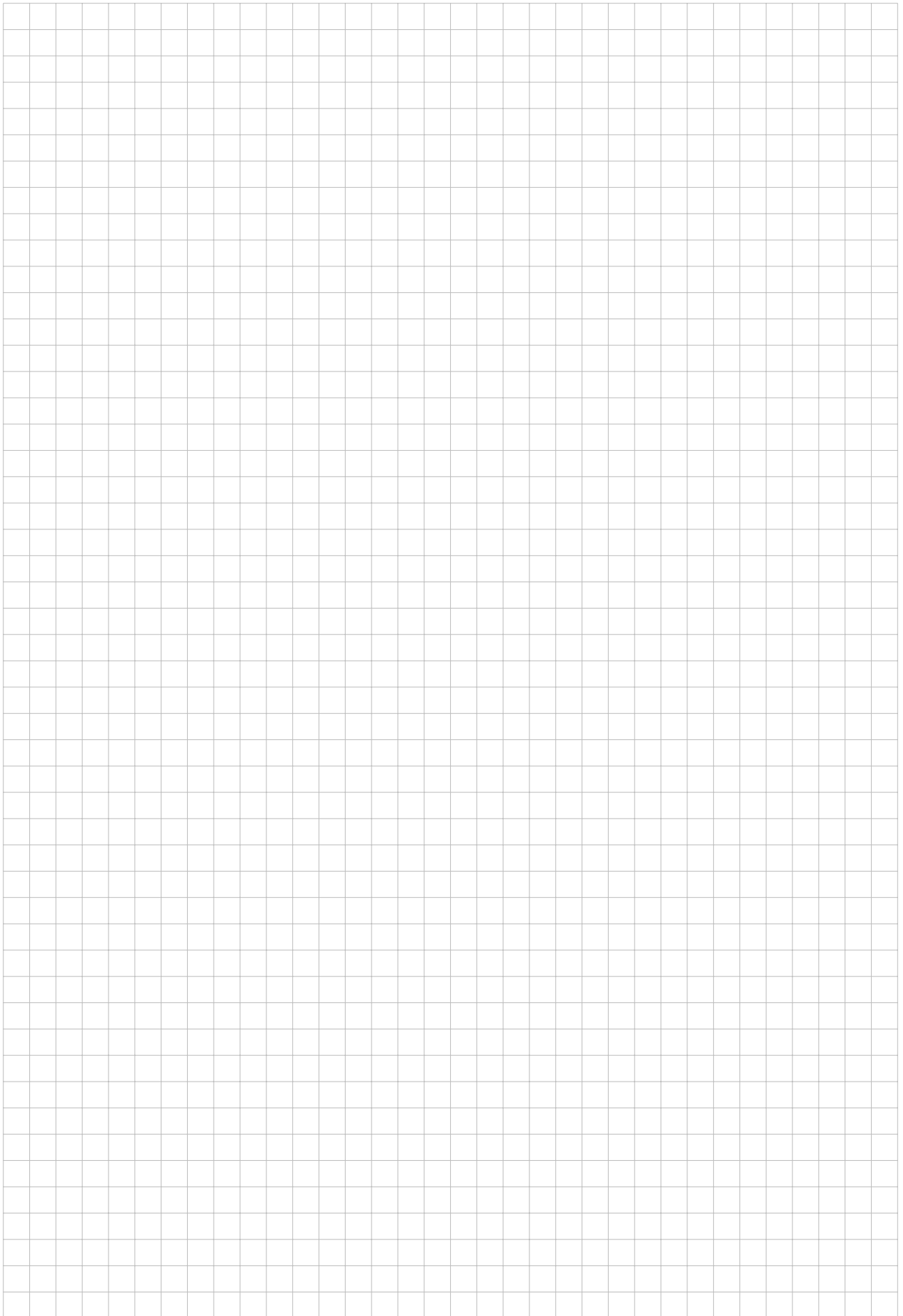


## Задание 5

Решите неравенство:

$$\frac{81^x + 2 \cdot 25^{x \log_5 3} - 5}{(4x - 1)^2} \geq 0.$$

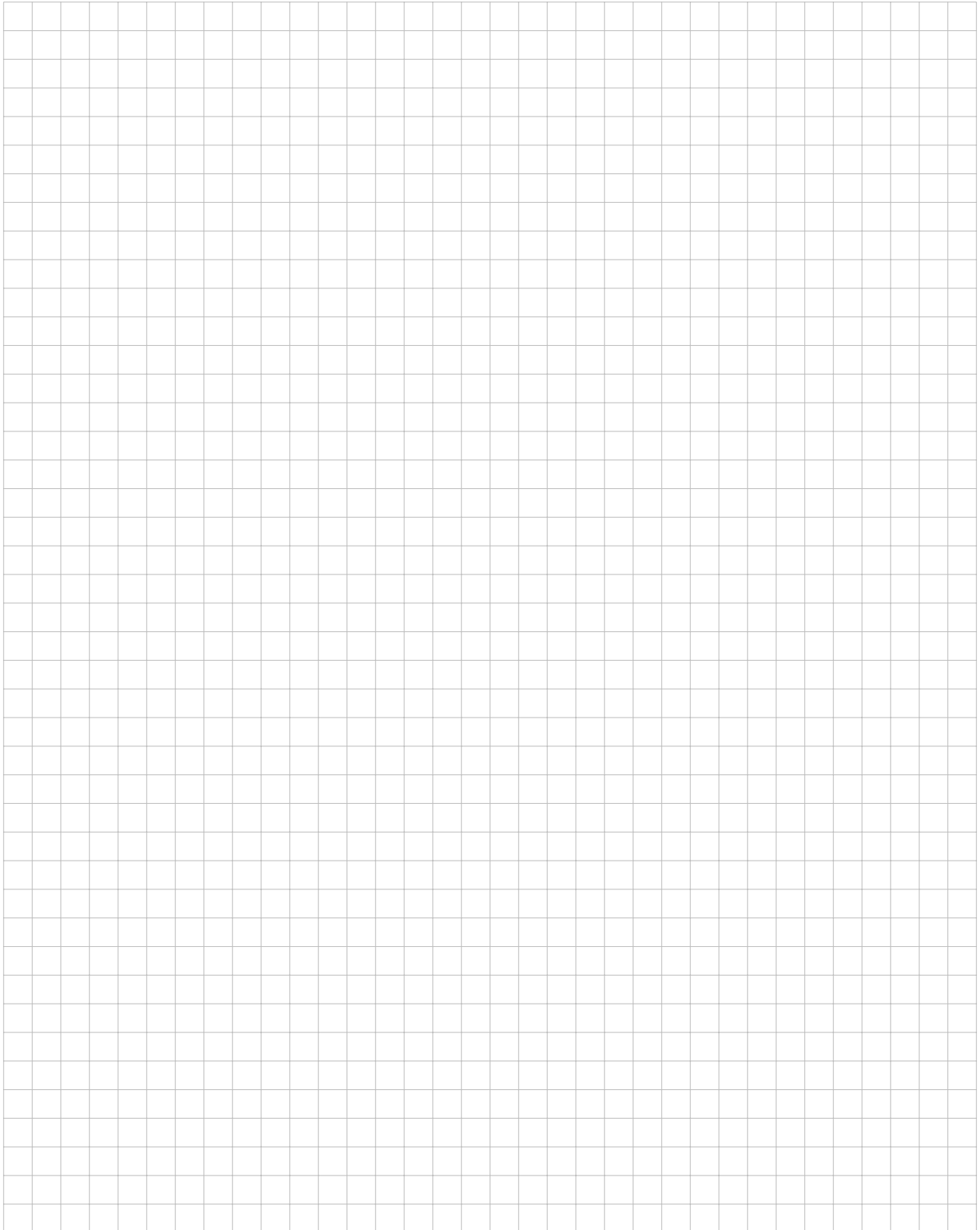


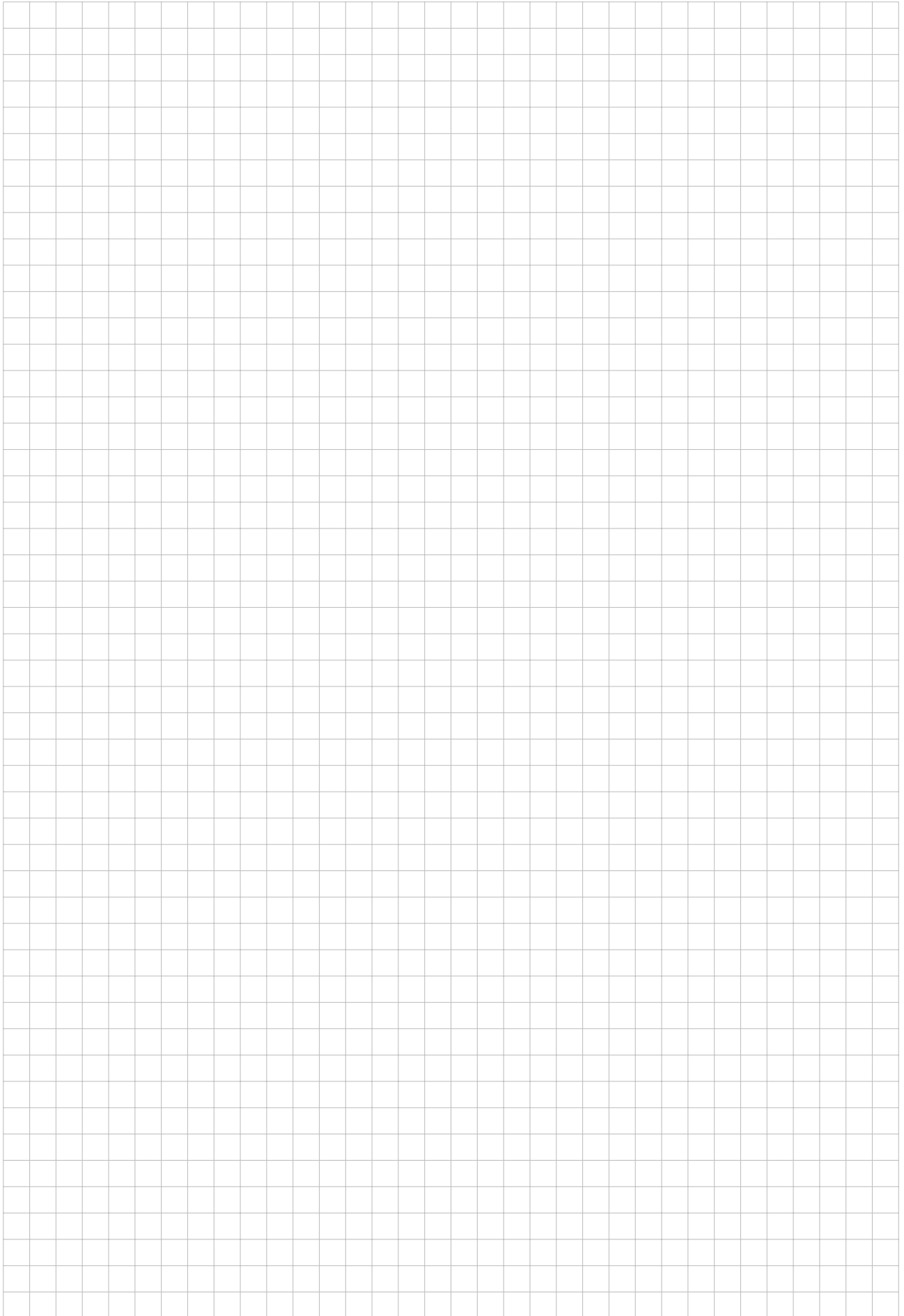


## Задание 6

Решите неравенство:

$$x^2 \cdot \log_{343}(x + 3) \leq \log_7(x^2 + 6x + 9).$$

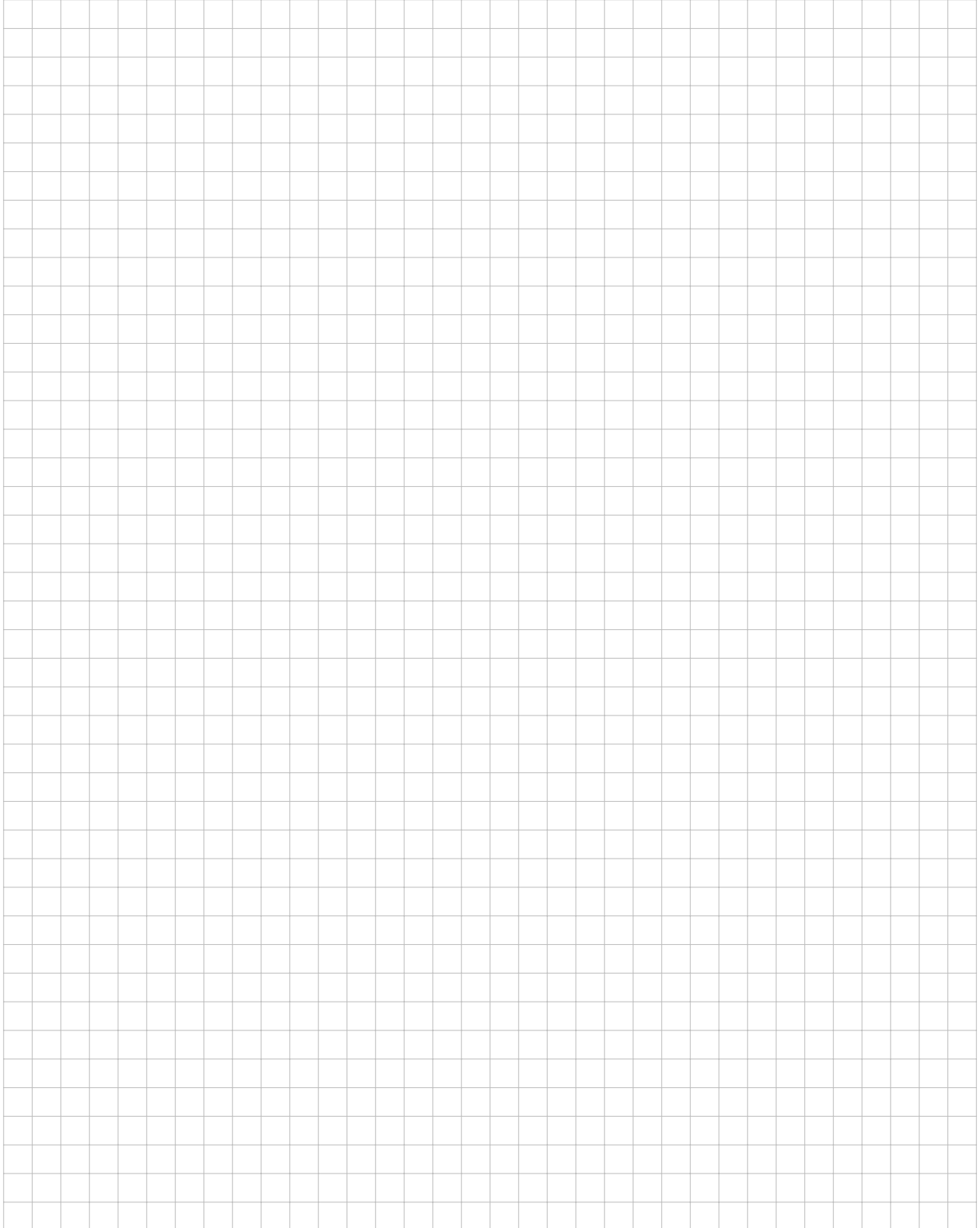


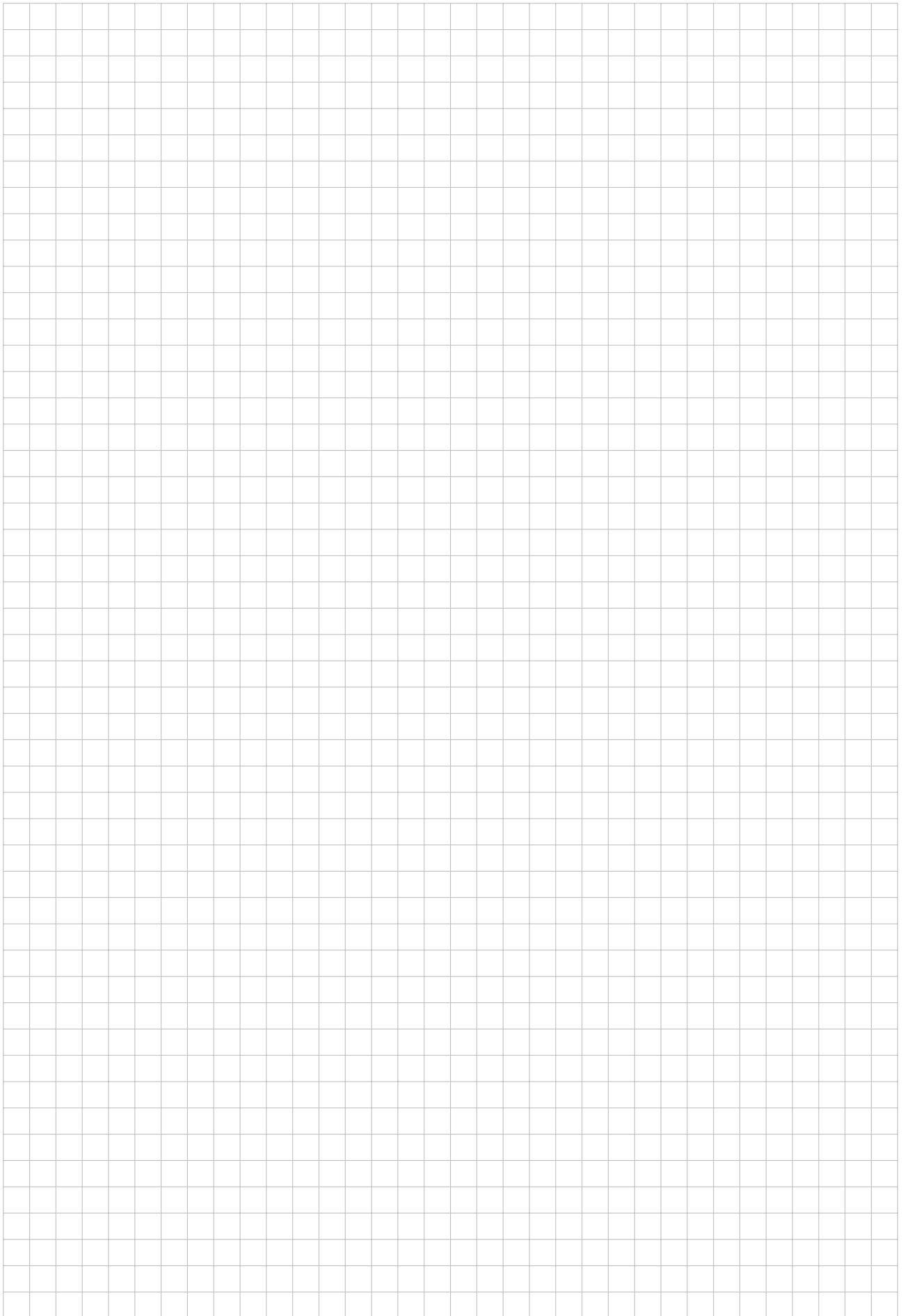


## Задание 7

Решите неравенство:

$$0,5 \log_{x-1} (x^2 - 8x + 16) + \log_{4-x} (-x^2 + 5x - 4) \geq 3.$$





**ОТВЕТЫ**

1.  $x \in [2; 3);$
2.  $x \in (-\infty; -2) \cup (-2; -1] \cup [1; 2) \cup (2; +\infty) \cup \{0\};$
3.  $x \in [-3; -2) \cup (-2; -\log_2 3) \cup (\log_2 3; 2) \cup (2; 3] \cup \{0\};$
4.  $x \in \left(0; \frac{1}{9}\right] \cup [9; 27) \cup (27; +\infty);$
5.  $x \in \left[\log_9(\sqrt{6} - 1); \frac{1}{4}\right) \cup \left(\frac{1}{4}; +\infty\right);$
6.  $x \in (-3; -\sqrt{6}] \cup [-2; \sqrt{6}];$
7.  $x \in (2; 3).$