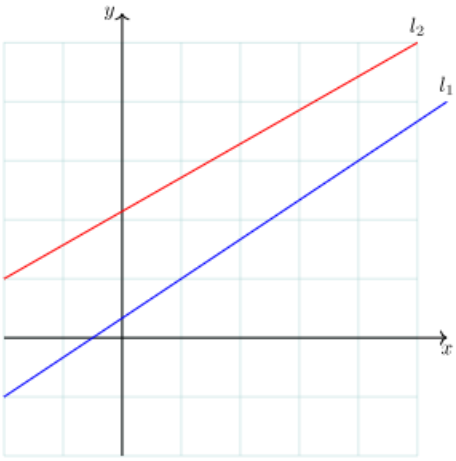
1 этап - тест
пример заданий

Пожалуйста, прочитайте правила проведения тестирования.

- Тестирование длится 90 минут.
- Задачи можно решать в любом порядке.
- В каждой задаче потребуется сдать только ответ.
- Во время тестирования можно использовать ручку, карандаш и бумагу для черновиков.
- Запрещается использовать калькулятор, помощь других людей, генеративные модели (ChatGPT, DeepSeek и т. п.)

Question 1. Evaluate $\left(6-2\frac{4}{5}\right)\cdot 3\frac{1}{8}-1\frac{3}{5}:\frac{1}{4}-1:\frac{1}{3}$.

Question 2. The line l_1 with equation $y=k_1x+b_1$ and l_2 with equation $y=k_2x+b_2$ are shown on the picture. Which of the following statements are true:



a) $k_1>k_2,\ b_1>b_2$;

b) $k_1>k_2,\ b_1<b_2$;

c) $k_1<k_2,\ b_1>b_2$;

d) $k_1>k_2,\ b_1<b_2$?

Question 3. Which number is larger $0.2^{2^{15}}$ or $0.05^{2^{10}}$?

Question 4. Find the value of the expression $(2-6b)(2a+b)-(5+4a)(a-3b)+2(3b^2+2a^2)$ for $a=\frac{1}{2},\ b=2\frac{5}{34}$.

Question 5. An unloaded car traveled from point A to point B at a constant speed and returned along the same road with a load at 60 km/h. What was its speed when traveling unloaded if the average speed for the entire journey was 70 km/h?

Question 6. Solve the equation $(10+410:(2x-31))\cdot 5=60$.

Question 7. Evaluate $\frac{-5.13^2-0.76^2+4.37^2}{15.2\cdot 1.026}$.

Question 8. Solve the inequality $\frac{x+1}{4}-\frac{4x+1}{5}\le\frac{7-3x}{10}$.

Question 9. A six-digit phone number is given. A seven-digit phone number will be called "extended" if removing one of its digits results in the given six-digit number. How many such "extended" numbers are there?

Question 10. Solve the system: $\begin{cases}2x+3y=7\\3x+2y=3\end{cases}$.

Question 11. Alice has a sheet of paper measuring $51\,\text{cm} \times 21\,\text{cm}$ and a pair of scissors. She cuts a square from the sheet, with one side equal to the shorter side of the sheet. She continues cutting squares of the same size until it's no longer possible to do so. Then, she repeats the process with the remaining (non-square) portion of the sheet, and so on. How many squares will Alice have in total? What is the side length of the smallest square?

Question 12. The angle bisectors drawn from vertices A and B of triangle ABC intersect at point D. Find the angle $\angle ADB$ if $\angle BAC = 50^\circ$, $\angle ABC = 100^\circ$.

Question 13. The monthly gas production volumes at the first, second, and third fields are in the ratio 3:8:13. It is planned to reduce the monthly gas production at the first field by 13% and at the second field by 13% as well. By what percentage should the monthly gas production at the third field be increased so that the total gas production remains unchanged?

Question 14. The line l_1 with equation $y = k_1 x + b_1$ passes through points $(2, 4)$ and $(3, 6)$. The line l_2 with equation $y = k_2 x + b_2$ is perpendicular to l_1 and passes through $(0, 5)$. Find the value of coefficients k_1, b_1, k_2, and b_2.

Question 15. A rectangular bar of chocolate has a mass of 100 g. and consists of 20 equal squares. Bob cut the bar into four pieces as shown in the picture. What is the weight of the middle piece?