

1. On a graph paper plot the linear functions by finding the points of intersection of the graph with axes.

Example:

$$y = 0.5x - 1$$

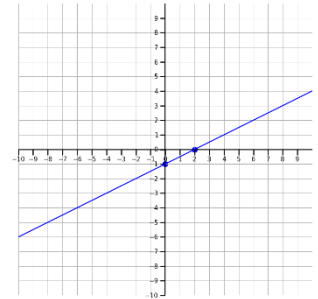
When $x = 0$, $y = -1$, so the plot will intersect the Oy axis at the point $(0, -1)$. To find the point of intersection with the Ox the equation

$$0.5x - 1 = 0$$

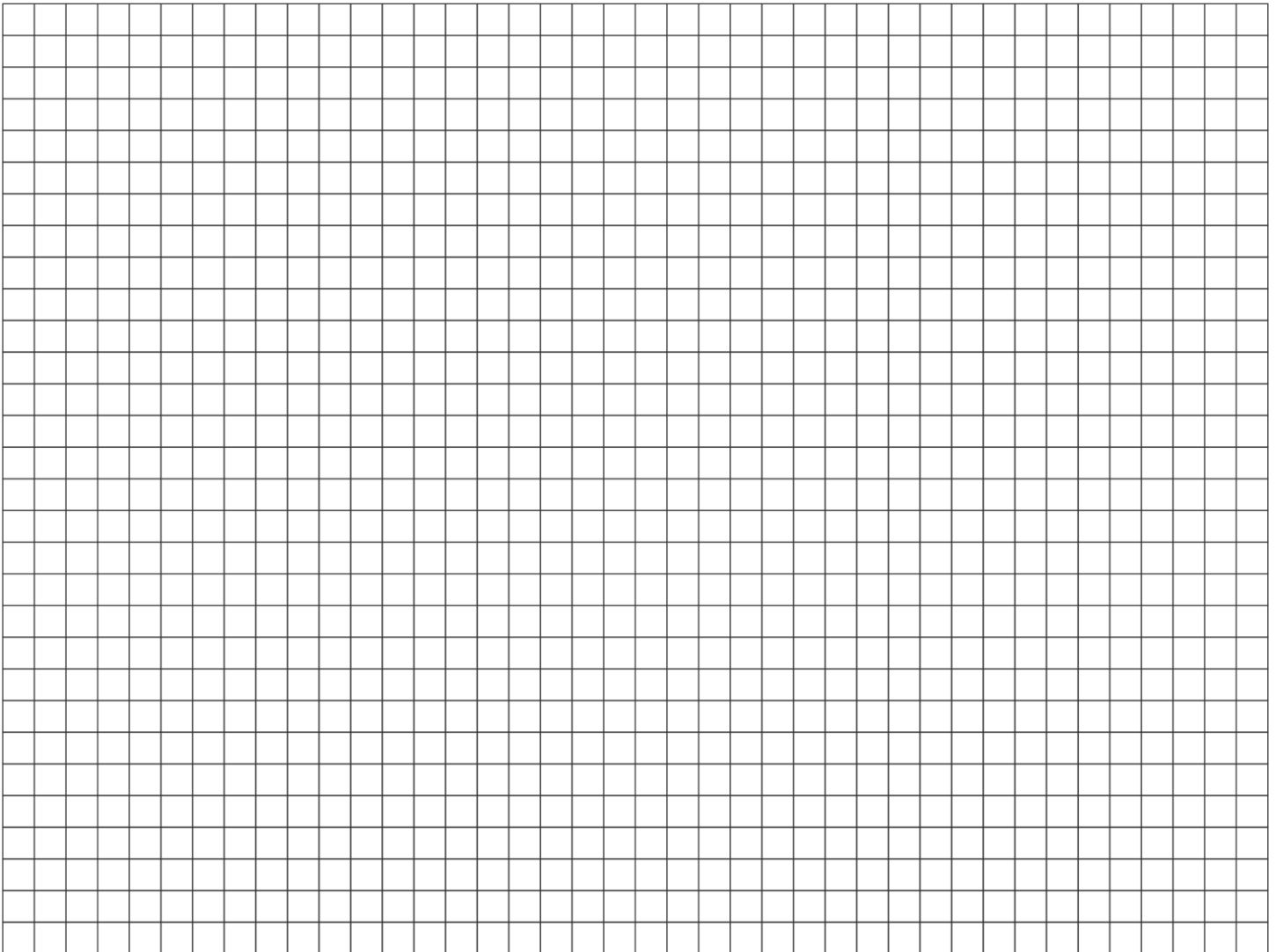
Need to be solved.

$$0.5x = 1, \quad x = \frac{1}{0.5} = 2$$

The Ox axis intersects with the graph at the point $(2, 0)$.

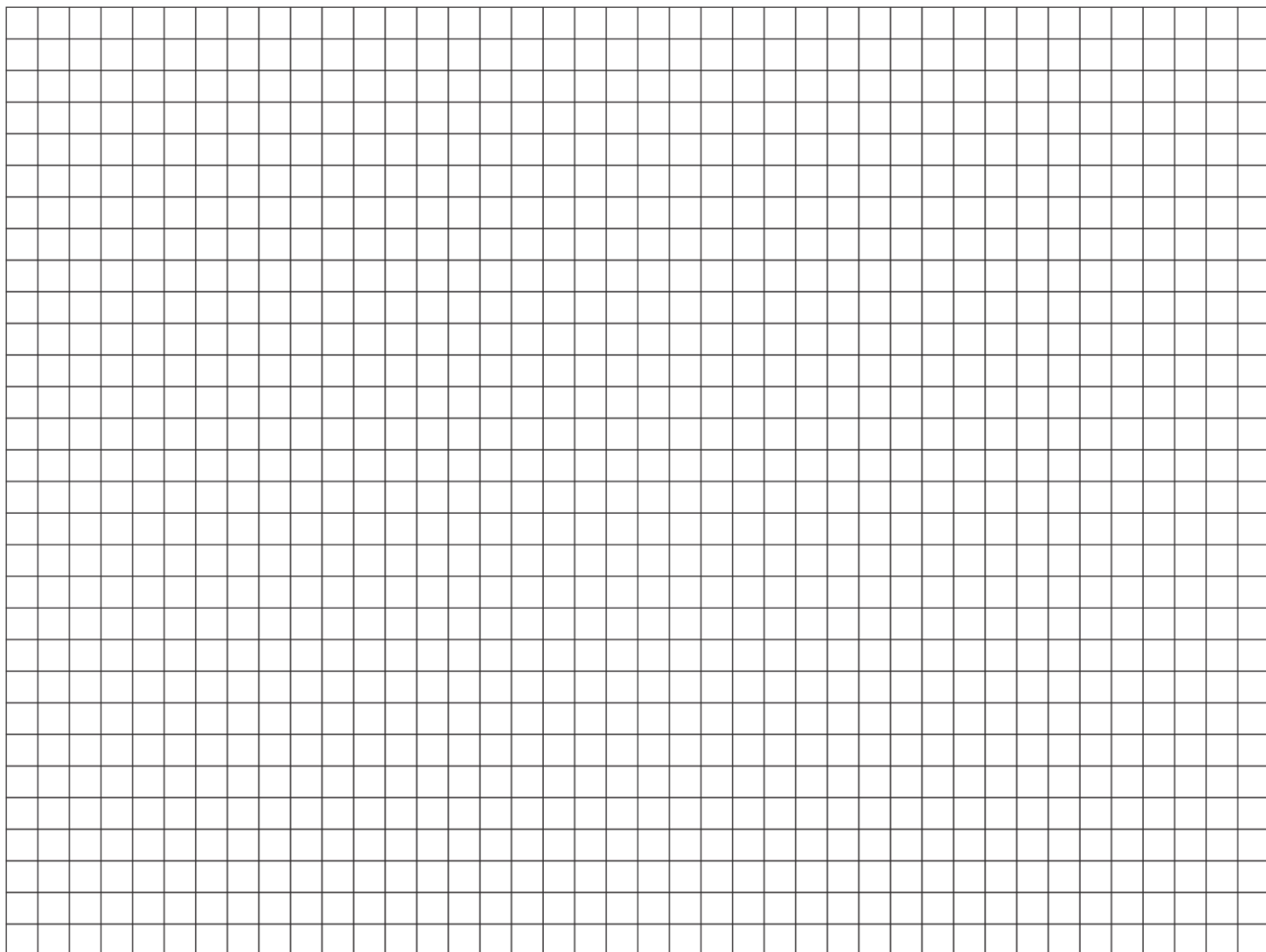


a. $y = x + 3$; b. $y = 2x - 2$, c. $y = \frac{1}{4}x + 4$



2. Plot the following function:

a. $y = x^2$; b. $y = 2x^2$, c. $y = -2x^2$; b. $y = 2x^2 + 2$, c. $y = -2x^2 - 2$;



3. The linear function is passing through point A(1, 2) and point B(3, 4). Find this function. (Find a and b in $y = ax + b$.)
4. How many different positions are there on the chess board for king, queen, and one pawn? (Chess board has $8 \cdot 8 = 64$ cells, figures can be positioned on any cells).
5. How many different positions are there for 3 identical pawns on the chess board?
6. Mary bought bowls and plates. She spent \$80 altogether. Each bowl costs \$6 and each plate costs \$8. How many bowls and plates did Mary buy? Find all possible solutions.
7. Represent as polynomial:

Example:

$$\begin{aligned}(2m + 3)^2 - 3(m - 4)(m + 4) - 56 &= 4m^2 + 12m + 9 - 3(m^2 - 16) - 56 \\ &= 4m^2 + 12m + 9 - 3m^2 + 48 - 56 = m^2 + 12m + 1\end{aligned}$$

$$5(3 - 2a)(2a + 3) - 2(a - 5)^2 + 5;$$