Answer on Question #61840 – Math – Algebra

Question

Find the point of intersection of the following two lines:

$$x + 4y = 9$$

$$7x - 3y = 1$$

Solution

To find the point of intersection of two lines, we just need to solve the system of equations

$$\begin{cases} x + 4y = 9 \\ 7x - 3y = 1 \end{cases}$$

First, let's multiply the first equation by 3 and second by 4

$$\begin{cases} 3x + 12y = 27 \\ 28x - 12y = 4 \end{cases}$$

Now add the second equation to the first one:

$$3x + 8x = 27 + 4, \text{ hence} \quad 31x = 31$$

Divide both sides by 31:

$$x = 1$$

Substitute $x = 1$ into the first equation:

$$1 + 4y = 9$$

Subtract 1 from both sides:

$$4y = 8$$

Divide both sides by 4:

$$y = 2$$

Therefore, the point of intersection is $(x, y) = (1, 2)$

Answer: (1, 2).