

To ligninger med to ubekendte

In[20]:=



Solve[{2 x + 3 y == 4, x - 2 y == 9},{x,y}]

Implicit plot

Input interpretation:

Solve[{2*x + 3*y == 4, x - 2*y == 9}, {x, y}]

solve

$$2x + 3y = 4$$

for

x, y

$$x - 2y = 9$$

Results:

Use substitution | ▾

Hide steps

Reduce[{2*x + 3*y == 4, x - 2*y == 9}, x]

$$x = 5 \text{ and } y = -2$$

Possible intermediate steps:

Solve the following system:

$$\begin{cases} 3y + 2x = 4 \\ -2y + x = 9 \end{cases}$$

In the second equation, look to solve for x:

$$\begin{cases} 3y + 2x = 4 \\ -2y + x = 9 \end{cases}$$

Add $2y$ to both sides:

$$\begin{cases} 3y + 2x = 4 \\ x = 2y + 9 \end{cases}$$

Substitute $x = 2y + 9$ into the first equation:

$$\begin{cases} 3y + 2(2y + 9) = 4 \\ x = 2y + 9 \end{cases}$$

$$3y + 2(2y + 9) = (4y + 18) + 3y = 7y + 18:$$

$$\begin{cases} 7y + 18 = 4 \\ x = 2y + 9 \end{cases}$$

In the first equation, look to solve for y:

$$\begin{cases} 7y + 18 = 4 \\ x = 2y + 9 \end{cases}$$

Subtract 18 from both sides:

$$\begin{cases} 7y = -14 \\ x = 2y + 9 \end{cases}$$

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Divide both sides by 7:

$$\begin{cases} y = -2 \\ x = 2y + 9 \end{cases}$$

Substitute $y = -2$ into the second equation:

$$\begin{cases} y = -2 \\ x = 5 \end{cases}$$

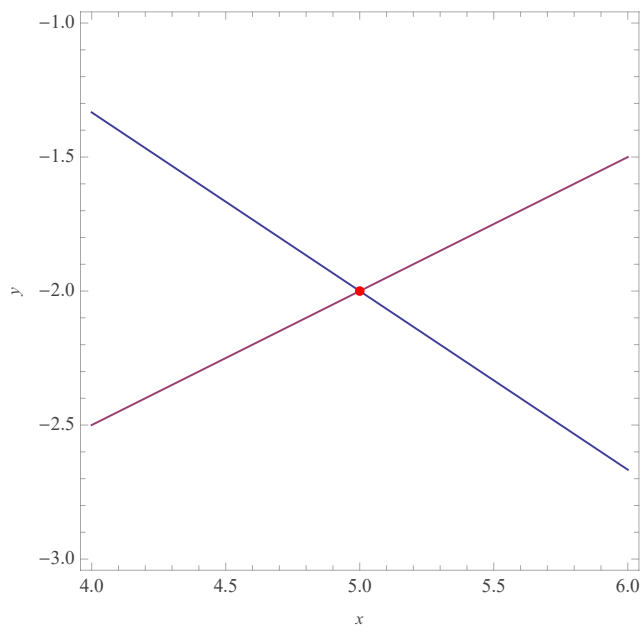
Collect results in alphabetical order:

Answer:

$$\begin{cases} x = 5 \\ y = -2 \end{cases}$$

Implicit plot:

`ContourPlot[{2*x + 3*y == 4, x - 2*y == 9}, {x, 4, 6}, {y, -3, -1}]`



— $2x + 3y = 4$

— $x - 2y = 9$