Questions from Homework

Solving Systems of Equations

REMEMBER:
- you can multiply equations by a constant
- can add & subtract 2 equations to get a new equation
- you can rearrange the order of equations

The Elimination Method:

$x + 2y = 4$

$-x + 3y = 1$

$5y = 5$

$\frac{5y}{5} = \frac{5}{5}$

$y = 1$

$x + 2y = 4$

$x + 2(1) = 4$

$-2 \quad -2$

$x + 0 = 2$

$x = 2$

$(2, 1)$

The Substitution Method:

$x + 2y = 4$

$-x + 3y = 1$

(i) $-x + 3y = 1$

$3y - 1 = x$

or $x = 3y - 1$

(ii) $x + 2y = 4$

$(3y - 1) + 2y = 4$

$3y - 1 + 2y = 4$

$5y - 1 = 4$

$+1 \quad +1$

$\frac{5y}{5} = \frac{5}{5}$

$y = 1$

(iii) $x = 3y - 1$

$x = 3(1) - 1$

$x = 3 - 1$

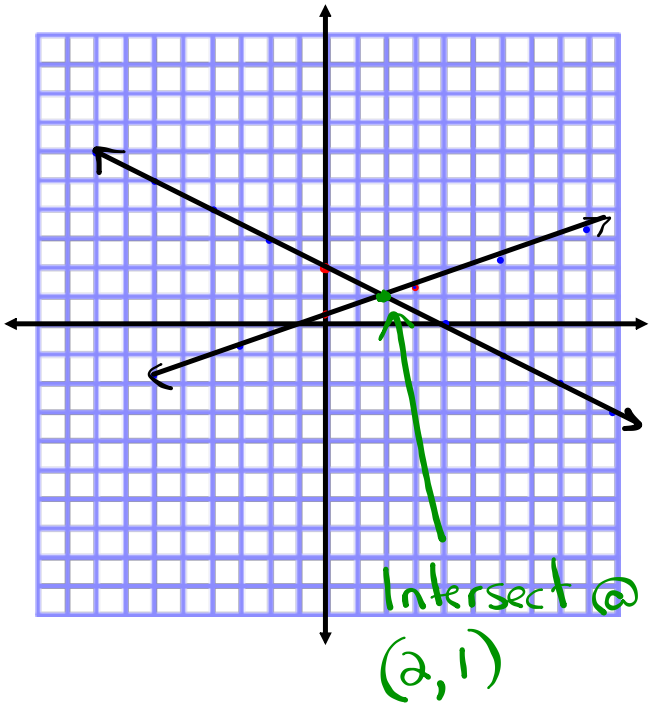
$x = 2$

(iv) $(2, 1)$

Graphing:

$$x + 2y = 4$$

$$-x + 3y = 1$$



(I) $x + 2y = 4$

$2y = -x + 4$

$y = -\frac{1}{2}x + 2$

$m = -\frac{1}{2}$ $b = 2$ $(0,2)$

(II) $-x + 3y = 1$

$3y = x + 1$

$y = \frac{1}{3}x + \frac{1}{3}$

$m = \frac{1}{3}$ $b = \frac{1}{3}$ $(0,\frac{1}{3})$

$3x+2y=12$ → $3x+2y=12$

$x+3y=11$ → $\cdot 3 \quad \cdot 3 \quad \cdot 3$ → $\ominus\ 3x+9y=33$

$-7y=-21$

$\frac{-7y}{-7} = \frac{-21}{-7}$

$y=3$

$x+3y=11$

$x+3(3)=11$

$x+9=11$ $\quad -9 \quad -9$

$x=2$

$(2,3)$

$2x - 3y = 2$ ·2 ·2 ·2

$3x + 2y = 16$ ·3 ·3 ·3

$4x - 6y = 4$

$+\ 9x + 6y = 48$

$\frac{13x}{13} = \frac{52}{13}$

$x = 4$

$2x - 3y = 2$

$2(4) - 3y = 2$

$8 - 3y = 2$ −8 −8

$\frac{-3y}{-3} = \frac{-6}{-3}$

$y = 2$

$(4, 2)$

Homework

Answers:

① (-8, 6)

② (-10, 0)

③ (0, -1)

④ (5, -1)

⑤ (-12, -8)

⑥ (3, 3)

⑦ (-2, 9)

⑧ (1, -7)

⑨ (0, 0)

⑩ (5, 0)