TMPV Yhtälöpari tuntitehtävä

1. a) $\begin{cases} 4x + 3y = 1 \\ 2x - y = -4 \end{cases}$

$-y = -4 - 2x$

$y = 4 + 2x$

$y = 4 + 2\left(-\frac{11}{10}\right)$

$y = 4 - \frac{11}{5}$

$y = \frac{9}{5}$

$4x + 3(4 + 2x) = 1$

$4x + 12 + 6x = 1$

$4x + 6x = 1 - 12$

$10x = -11 \quad | : 10$

$x = -\frac{11}{10}$

b) $\begin{cases} x + 5y = 1 \\ 3x + 2y + 2 = 0 \end{cases}$

$x = 1 - 5y$

$3(1 - 5y) + 2y + 2 = 0$

$3 - 15y + 2y + 2 = 0$

$-13y + 2y = -2 - 3$

$-13y = -5 \quad | : -13$

$y = \frac{5}{13}$

$x = 1 - 5\left(\frac{5}{13}\right)$

$x = 1 - \frac{25}{13}$

$x = -\frac{12}{13}$

2. a) $\begin{cases} 10x - 6y = 15 \quad | \cdot 2 \\ 3x - 4y = -1 \quad | \cdot -3 \end{cases}$

$20x - 12y = 30$

$-9x + 12y = 3$

$11x = 33 \quad | : 11$

$x = 3$

$3 \cdot 3 - 4y = -1$

$9 - 4y = -1$

$-4y = -1 - 9$

$-4y = -10 \quad | : -4$

$y = \frac{5}{2}$

b) $\begin{cases} 2,5x + 4,0y = 6,0 \\ 6,0y = 5,5x - 7,0 \end{cases}$

$2,5x + 4,0y = 6,0 \quad | \cdot 3$

$5,5x - 6,0y = 7,0 \quad | \cdot 2$

$7,5x + 12y = 18$

$11x - 12y = 14$

$19,5x = 32 \quad | : 19,5$

$x = \frac{64}{37} \approx 1,7$

$6y = 5,5 \cdot \frac{64}{37} - 7$

$6y = \frac{352}{37} - 7$

$6y = \frac{93}{37} \quad | : 6$

$y = \frac{31}{74} \approx 0,42$

6.

$50A + 100B$	$= 454$ €	$\| \cdot 2$	
$30A + 40B$	$= 202$ €	$\| \cdot 5$	
$100A + 200B$	$= 908$		
$-150A - 200B$	$= -1010$		
$-50A$	$= -102$	$\| \cdot -50$	

$A = 2{,}04$ €

$30 \cdot 2{,}04 + 40B = 202$

$61{,}2 + 40B = 202$

$40B = 202 - 61{,}2$

$40B = 140{,}8 \mid :40$

$B = 3{,}52$ €

9.

An netto $= x(1-0{,}38)$

Bn netto $= y(1-0{,}43)$

$x(1-0{,}38) = Y(1-0{,}43)$

$x + y = 3200$

$0{,}62x = 0{,}57y$

$x = 3200 - y$

$0{,}62 \cdot (3200-y) = 0{,}57y$

$1984 - 0{,}62y = 0{,}57y$

$1984 = 0{,}57y + 0{,}12y$

$1984 = 1{,}19y \mid :1{,}19$

$y \approx 1667{,}226891$

$\approx 1667{,}23$

$x = 3200 - 1667{,}226891$

$\approx 1532{,}773109$

$\approx 1532{,}77$