8.1 p. 507

ex 4 $(4, 3)$

Is this a solution for the system (both equations)?

$x + 2y = 10$

$3x + 5y = 3$

$4 + 2(3) \stackrel{?}{=} 10$ ✓

$3(4) + 5(3) \stackrel{?}{=} 3$ ✗

No.

ex 6 $(-9, -2)$

$2x - 5y = -8$

$3x + 6y = -39$

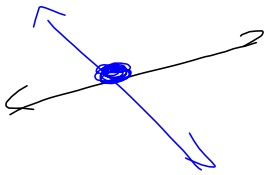
$2(-9) - 5(-2) \stackrel{?}{=} -8$

$-18 + 10 = -8$ ✓

$3(-9) + 6(-2) \stackrel{?}{=} -39$

$-27 - 12 = -39$ ✓

Yes.



1 point in common
(x, y)

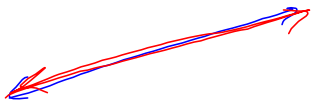
independent
consistent

p. 505

parallel

no solution

independent
inconsistent



coincide

infinitely many solutions

dependent
consistent

equation of l line

ex 16 $x - y = 3$
$x + y = -1$

x	y
0	-3
3	0
6	3

$0 - y = 3$
$y = -3$

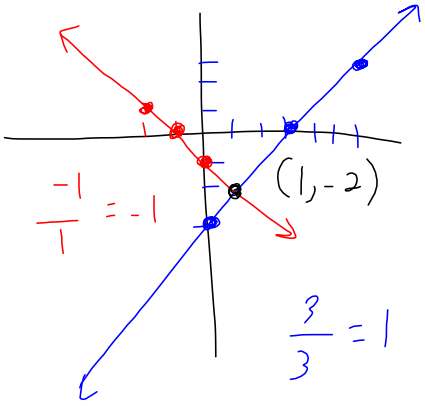
$x - ^ = 3$

$6 - y = 3$
$-6 \quad -6$
$-y = -3$
$y = 3$

x	y
0	-1
-1	0
-2	1

$-2 + 1 = -1$

$1 - (-2) = 3$ ✓
$1 + (-2) = -1$ ✓



$\frac{-1}{1} = -1$

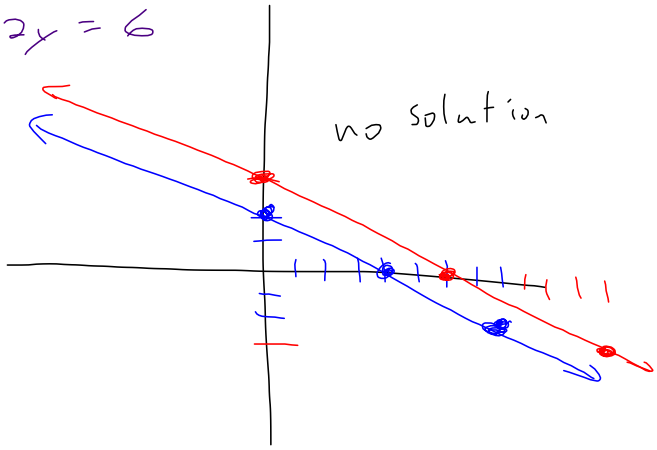
$\frac{3}{3} = 1$

ex26 $x+2y=4$

$\frac{2x}{2}+\frac{4y}{2}=\frac{12}{2} \rightarrow x+2y=6$

x	y
0	2
4	0
8	-2

x	y
0	3
6	0
12	-3

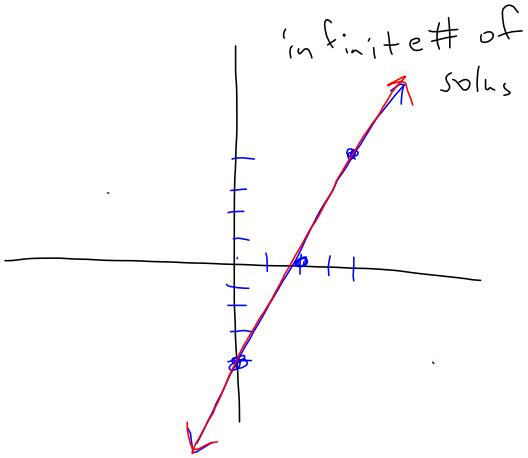


ex28 $2x-y=4$

$\frac{4x}{2}-\frac{2y}{2}=\frac{8}{2}$

x	y
0	-4
2	0
4	4

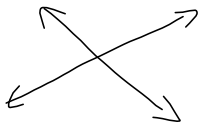
x	y
0	-4
2	0
4	4



$\{(x,y) \mid 2x-y=4\}$

ex 36 $y + 2x = 6 \rightarrow 2x + y = 6$

$x - 3y = -4 \rightarrow x - 3y = -4$



1 solution

consistent

independent

ex 38 $2x + y = 4$

$\cdot -1$ $y + 4 = 2x$

$-4 \quad -2x \quad -4$

$\cdot -1$ $\cdot -1$

$-2x + y = -4$

same line (coincide)

infinite # of solns

$\{(x,y) \mid 2x - y = 4\}$

dependent

consistent

8.2 p.517

ex4

$x + 3y = -28$

$y = -5x$

① get 1 eq.
$x =$ ___ or $y =$ ___

② substitute

$x + 3(-5x) = -28$

$x - 15x = -28$

$-14x = -28$

$x = 2$

$y = -5x$

$y = -5(2)$

$y = -10$

$(2, -10)$

ex6 $4x + 3y = -5$

$x = y - 3$

$4(y - 3) + 3y = -5$

$4y - 12 + 3y = -5$

$+12 \quad +12$

$7y = 7$

$y = 1$

$x = y - 3$

$x = 1 - 3$

$x = -2$

$(-2, 1)$

ex 10 $3x - 2y = 19$

$x + y = 8$

$-y \quad -y$

$x = 8 - y$

$3(8 - y) - 2y = 19$

$24 - 3y - 2y = 19$

$-24 \quad -24$

$-5y = -5$

$y = 1$

$x = 8 - y$

$x = 8 - 1$

$x = 7$

$(7, 1)$

ex 14 $4x - y = -3$

$y = 4x + 3$

$4x - (4x + 3) = -3$

$4x - 4x - 3 = -3$

$+3 \quad +3$

$0 = 0$

infinite # of solutions

ex18

$2x + 10y = 3$

$x = 1 - 5y$

$2(1 - 5y) + 10y = 3$

$2 - 10y + 10y = 3$

$-2 \qquad\qquad -2$

$2 = 3$

no solution

$0 = 1$

ex26

$\left(\frac{x}{2} + \frac{y}{3} = \frac{7}{6}\right) \cdot \frac{6}{1}$ LCD

$\left(\frac{x}{4} - \frac{3y}{2} = \frac{9}{4}\right) \cdot \frac{4}{1}$ LCD

$\frac{6x}{2} + \frac{6y}{3} = \frac{42}{6}$

$3x + 2y = 7$

$\frac{4x}{4} - \frac{12y}{2} = \frac{36}{4}$

$x - 6y = 9$

$+6y \qquad +6y$

$x = 6y + 9$

$3(6y + 9) + 2y = 7$

$18y + 27 + 2y = 7$

$-27 \qquad\qquad -27$

$20y = -20$

$y = -1$

$x = 6(-1) + 9$

$x = -6 + 9$

$x = 3$

$(3, -1)$

ex 10 $\begin{cases} .1x + .9y = -2 \\ .5x - .2y = 4.1 \end{cases} \cdot 10$

$x + 9y = -20$ (-9y, -9y)

$5x - 2y = 41$

$x = -9y - 20$

$5(-9y - 20) - 2y = 41$

$-45y - 100 - 2y = 41$ (+100, +100)

$-47y = 141$

$\frac{-47y}{-47} = \frac{141}{-47}$

$y = -3$

$x = -9(-3) - 20$

$x = 27 - 20$

$x = 7$

$(7, -3)$