Answer on Question #48525 – Math – Linear Algebra

1) Translate the verbal description into a system of equations then solve.

(a) Find two numbers whose sum is 102 and one number is twice the other number.
(b) The sum of three times the first number and the second number is one. The first number minus the second number is seven.

2) Solve the system of equations

(a) $y=-x$
$5x-7y=6$
(b) $2x+3y=15$
$5x+4y=-1$
(c) $y=-x$
$5x-7y=6$

Solution

1)

(a)
$x+ y = 102$
$x = 2y$

$3y = 102$
$x = 2y$

$y = 34$
$x = 68$

(b)
$3x + y = 1$
$x - y = 7$

$3x + x - 7 = 1$
$y = x - 7$

$x = 2$
$y = -5$

2)

(a) $y = -x$
$5x - 7y = 6$

$y = -x$
$5x + 7x = 6$

$y = -x$
$12x = 6$

$y = -1/2$
$x = 1/2$

(b) $2x + 3y = 15$
$5x + 4y = -1$

$y = 5 - 2/3x$
$5x + 20 - 8/3x = -1$

$y = 5 - 2/3x$
$7/3x = -21$

$y = 11$
$x = -9$

(c) = (a)