HW

4.2.3
4-60 to 4-65
(also 4-59)

4-59

Find the intersection point.

a) $2y - x = 5$
$-3y + x = -9$

$2y - x = 5$
$-2y \quad -2y$
$-x = 5 - 2y$
$x = -5 + 2y$

$2(4) - x = 5$
$4 - x = 5$
$+x \quad +x$
$4 = 5 + x$
$-5 \quad -5$
$-1 = x$

$-3y + x = -9$
$+3y \quad +3y$
$x = -9 + 3y$

$-5 + 2y = -9 + 3y$
$-2y \quad -2y$
$-5 = -9 + y$
$+9 \quad +9$
$4 = y$

$(4, -1)$

$(1, 3)$ $-3 + x = -14 + 2x$
$-x \quad -x$
$-3 = -14 + x$
$+14 \quad +14$
$11 = x$

b) $2x - 4y = 14$
$-2x \quad -2x$
$-4y = 14 - 2x$
$4y = 14 + 2x$
$4y - x = -3$
$+x \quad +x$
$4y = -3 + x$

$4y + 11 = -3$
$-11 \quad -11$
$4y = -14$

Plug it in!

$\frac{4y}{4} = \frac{14}{4}$
$y = -3.5$

c) $3x + 4y = 1$
$-3x \quad -3x$
$4y = 1 - 3x$

$2(-1) + 4y = 2$
$-2 + 4y = 2$
$+2 \quad +2$
$4y = 4$
$y = 1$

$2x + 4y = 2$
$-2x \quad -2x$
$4y = 2 - 2x$

$1 - 3x = 2 - 2x$
$+3x \quad +3x$
$1 = 2 + x$
$-2 \quad -2$
$-1 = x$

$(-1, 1)$

4-60

Find the intersection point.

a) $x = -2y - 3$ (leave it!)

$4y - x = 9$
$-4y \quad -4y$
$-x = 9 - 4y$
$x = -9 + 4y$

$-9 + 4y = -2y - 3$
$+2y \quad +2y$
$-9 + 6y = -3$
$+9 \quad +9$
$6y = 6$

$y = 1$

$x = -2(1) - 3$
$x = -2 - 3$
$x = -5$

$(-5, 1)$

** 4-60 cont'd on back

4-61

Solve the system, graph the two lines, and explain the graph.

$y = -2x + 5$
$2y + 4x = 10$
(substitute)

a) $2(-2x + 5) + 4x = 10$
$-4x + 10 + 4x = 10$
$10 = 10$

So x = All = infinite solutions

$2y + 4x = 10 = y = 5 - 2x$

✓: $y = -2(0) + 5$
$y = 5$
$2(5) + 4(0) = 10$
$10 = 10$ ✓

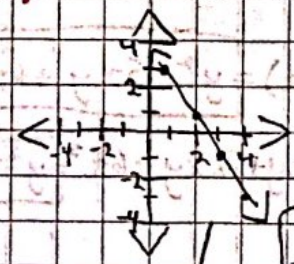
$y = 2x + 5$

x	y
1	3
2	1
3	-1
4	-3

$y = 5 - 2x$

x	y
1	3
2	1
3	-1
4	-3

b)



The lines coincide! They are the same line!

c) The answer for a was x = all because they are the same line and therefor always intersect. The system has infinite solutions.

4-62

Café sells pizza & burritos. How many pizzas?

cont'd on back →

a) $P = 2.5b - 20$
$P(2.50) + b(3.00) = 358$
$2.5(2b - 20) + 3b = 358$
$5b - 50 + 3b = 358$
$+50 \quad +50$
$8b + 3b = 408$
$8b = 408$
$b = 51$

$P = 5(51) - 20$
$P = 102 - 20$
$P = 82$

4-63 4-inch is $2.95, how much is 50-inch? Solve it!

$4 \times 12.5 = 50$

$2.95 \times 12.5 = ?$

$\begin{array}{r} 2.95 \\ \times\ 12.5 \\ \hline 1475 \\ 5900 \\ 29500 \\ \hline 36.875 \end{array}$

They'll charge... $\approx \$36.88$

4-64 Use generic rectangles & solve!

a.) $(x+2)(x-5) = x^2-3x-10$

	x^2	$-5x$
2	$2x$	-10

$x \quad -5$

$= x^2+2x-5x-10 = x^2-3x-10$

$(y+2x)(y+3x) = y^2+5xy+6x^2$

b.)

	y^2	$3xy$
$2x$	$2xy$	$6x^2$

$y \quad 3x$

$= y^2+3xy+2xy+6x^2 = y^2+5xy+6x^2$

c.) $(3y-8)(-x+y) = -3xy+8x+3y^2-8y$

	$3y(-x)$	$3y^2$
-8	$8x$	$-8y$

$-x \quad y$

$= -3xy+8x+3y^2-8y$

d.) $(x-3y)(x+3y) = x^2-9y^2$

	x^2	$3yx$
$-3y$	$-3yx$	$-9y^2$

$x \quad 3y$

$= x^2+3yx-3yx-9y^2 = x^2-9y^2$

4-65

a.) The line has a fairly linear moderately strong negative association with a few outliers.

b.) The new 2800 pound SUV will have about a 25 mpg according to the model.

4-60 cont'd

b.) $x+5y=8 \quad -x+2y=-1$

$-5y \quad -5y \qquad -2y \quad +2y$

$x = 8-5y \qquad -x = -1-2y$

$x = 1+2y$

$1+2y = 8-5y$

$+5y \quad +5y$

$1+7y = 8$

$-1 \quad -1$

$7y = 7$ so $y = 1$

$(3, 1)$

$x+5(1)=8$

$x+5=8$

$-5 \quad -5$

$x = 3$

c.) $4x-2y=5 \qquad y=2x+10$

$+2y \quad +2y \qquad -2x \quad -2x$

$4x = 5+2y \qquad -2x+y = 10$

$-y \quad -y$

$-2x = 10-y$

$2x = -10+y$

$\times 2 \quad \times 2$

$4x = -20+2y$

$-20+2y = 5+2y$

$-2y \quad -2y$

$-20 \neq 5$

null

↳ No intersecting point

no solution