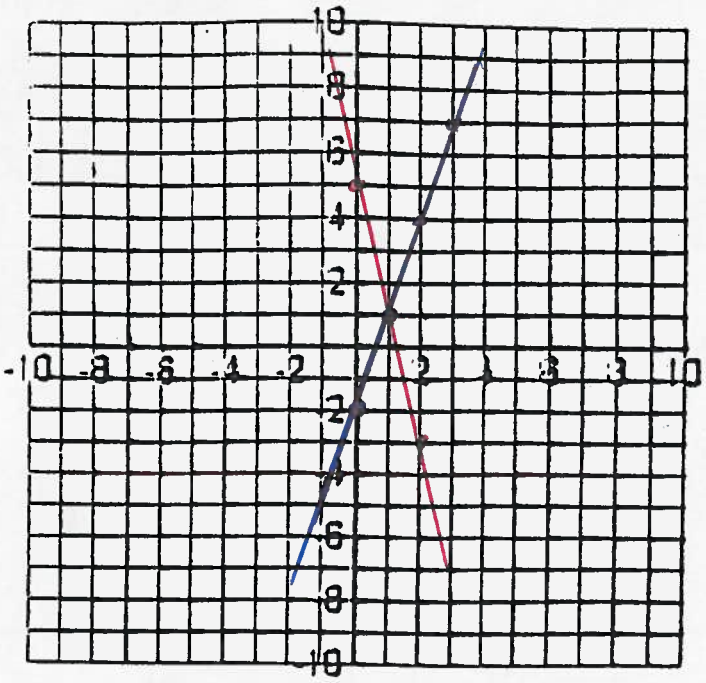
CHAPTER 5 - LINEAR SYSTEMS

COPY OF ANSWERS FOR TEST

1) Solve the following by graphing /5

$y = 3x - 2$

$y = -4x + 5$

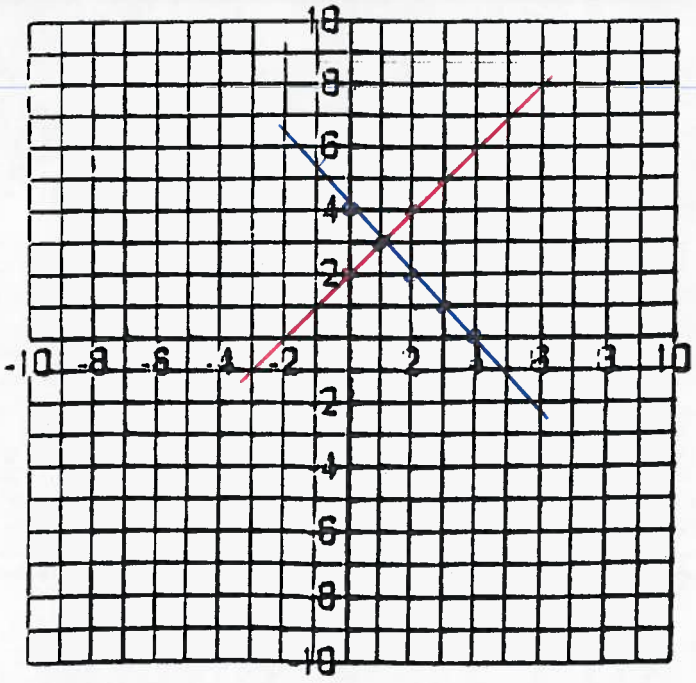


Point of Intersection: (1 , 1)

B) Solve the following by graphing /5

$x + y = 4$ $y = -x + 4$

$x - y = -2$ $y = x + 2$



Point of Intersection: (1 , 3)

2) Solve each system of equations of the following using substitution. /10

A)

$y = 3x + 5$

$y = -x - 3$

$3x + 5 = -x - 3$

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

$x = -2$

$y = 3x + 5$

$y = 3(-2) + 5$

$y = -6 + 5$

$y = -1$

$(-2, -1)$

B)

$3x + y = -4$

$y = 2x + 6$

$3x + (2x + 6) = -4$

$3x + 2x + 6 = -4$

$\frac{5x}{5} = \frac{-10}{5}$

$x = -2$

$y = 2x + 6$

$y = 2(-2) + 6$

$y = -4 + 6$

$y = 2$

$(-2, 2)$

3) Solve the system of equations by elimination /4

A)

$x + y = 7$

$x - y = 11$

$\frac{2x}{2} = \frac{18}{2}$

$x = 9$

$x + y = 7$

$9 + y = 7$

$y = -9 + 7$

$y = -2$

$(9, -2)$

B) /6

$3x + y = 18$

$x + 2y = 11$

$-6x - 2y = -36$

$+ \quad x + 2y = 11$

$\frac{-5x}{-5} = \frac{-25}{-5}$

$x = 5$

$x + 2y = 11$

$5 + 2y = 11$

$2y = 6$

$y = 3$

$(5, 3)$

4) A bank teller has a total of 124 bills in fives and tens. The total value of the money is $ 840. The following equation represent this situation.

/5

Total number of bills $x + y = 124$ → $y = -x + 124$

Total value $5x + 10y = 840$

A) Solve the system of equations by substitution.
B) How many $5 bills and how many $10 bills does the teller have?

$5x + 10(-x + 124) = 840$
$5x - 10x + 1240 = 840$
$-5x = -400$
$x = 80$

$x + y = 124$
$80 + y = 124$
$y = 44$

∴ there were 80 $5 bills & 44 $10 bills

5) A teacher wants to buy books for each student in her class. She has 28 students. The books cost $5 each for a workbook and $8 each for textbook.. The teacher has $173 to spend.

A) Write a system of equations to represent this relationship
B) Solve the system to determine to determine how many of **each type of book** can she buy?

/6

$w + t = 28 \rightarrow w = -t + 28$
$5w + 8t = 173$
$5(-t + 28) + 8t = 173$
$-5t + 140 + 8t = 173$
$3t = 33$
$t = 11$

$w + t = 28$
$w = 28 - 11$
$w = 17$

∴ she can buy 11 textbooks & 17 workbooks

6) The Athletic Council wants to buy a total of 45 volleyballs and basketballs. The council has $435 to spend. Each volleyball costs $8 and each basketball costs $11. How many of each type of ball can be purchased?

/6

$v + b = 45 \rightarrow v = -b + 45$
$8v + 11b = 435$
$8(-b + 45) + 11b = 435$
$-8b + 360 + 11b = 435$
$3b = 75$
$b = 25$

$v + b = 45$
$v + 25 = 45$
$v = 20$

∴ they can buy 20 volleyballs & 25 basketballs.