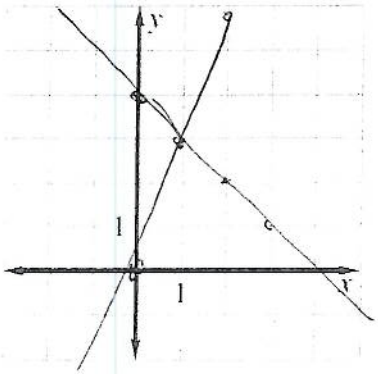
Name Key Date Per

Chapter 3 Review

Part B

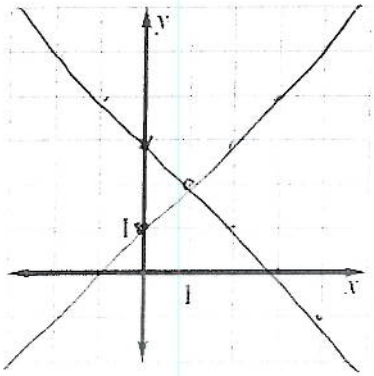
Graph the linear system and tell how many solutions it has. If there is exactly one solution, estimate the solution and check it algebraically.

1. $y = 3x$
   $y = -x + 4$



One sol.
(1, 3)

2. $y = x + 1$
   $y = -x + 3$

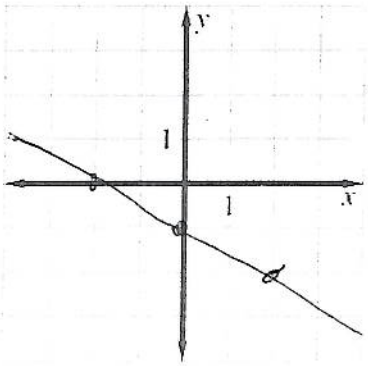


One sol.
(1, 2)

3. $x + 2y = -2$
   $-3x - 6y = 6$

$y = -\frac{1}{2}x - 1$

$y = -\frac{1}{2}x - 1$



Infinite sol.

Solve the system using any algebraic method.

4. $x + y = 2$
   $y = 2x + 5$

$x + 2x + 5 = 2$

$3x = -3$

$x = -1$

$y = -2 + 5 = 3$

$(-1, 3)$

5. $y - 2x = -5$
   $-y + x = +3$

$-x = -2$

$x = 2$

$y - 4 = -5$

$y = -1$

$(2, -1)$

6. $2x - y = -8$
   $2x + y = 4$

$4x = -4$

$x = -1$

$-2 - y = -8$

$-y = -6$

$y = 6$

$(-1, 6)$

Solve the system using any algebraic method.

17. $x + 4y + z = 12$

$y - 3z = -7$

$z = 3$

$y - 9 = -7$

$y = 2$

$x + 8 + 3 = 12$

$x + 11 = 12$

$x = 1$

$(1, 2, 3)$

18. $x + y + 2z = 5$

$x + 2y + z = 8$

$2x + 3y - z = 1$

$-y + z = -3$

$-(-y - 3z = -15)$

$4z = 12$

$z = 3$

$x + 6 + 6 = 5$

$x + 12 = 5$

$x = -7$

$-y + 3 = -3$

$-y = -6$

$y = 6$

$(-7, 6, 3)$

19. ***Earning money*** You work at a grocery store. Your hourly wage is greater after 6:00 P.M. than it is during the day. One week you work 20 daytime hours and 20 evening hours and earn $280. Another week you work 30 day time hours and 12 evening hours and earn a total of $276. What is your daytime rate? What is your evening rate?

20. ***Telethon*** During a recent telethon, people pledged $25 or $50. Twice as many people pledged $25 as $50. Altogether, $18,000 was pledged. How many people pledged $25?

19) Let x = day rate
y = night rate

$3(20x + 20y = 280)$

$-2(30x + 12y = 276)$

$60x + 60y = 840$

$-60x - 24y = -552$

$36y = 288$

$y = 8$

$20x + 160 = 280$ $\quad 20x = 120$ $\quad x = 6$

The daytime rate is $6/hr and evening rate is $8/hr.

20) Let x = # who gave $25
y = # who gave $50

$25x + 50y = 18000$

$x = 2y$

$25(2y) + 50y = 18000$

$50y + 50y = 18000$

$100y = 18000$

$y = 180$

$x = 360$

There were 360 $25 donors & 180 $50 donors.