

Solve all questions on a **separate** piece of paper. Show your work clearly.

1. Solve by **graphing**. Show the graphs on graph paper.

a)  $3x + y = -1$

$y = x + 3$

b)  $2x - 4y = 8$

$y = 2x + 1$

2. Solve by **substitution**.

a)  $4x + y = -6$

$-2x + 3y = 24$

b)  $2x + y = 9$

$x - y = 3$

c)  $-3x - 4y = -2$

$x + 2y = 3$

3. Solve by **elimination**.

a)  $2x + 3y = 6$

$5x + 10y = 20$

b)  $3a + 10b = -4$

$4a - 5b = 13$

c)  $2x - 9 = -5y$

$-2y + 3x = 4$

d)  $x - \frac{1}{3}y = \frac{4}{3}$

$\frac{5}{6}x + \frac{1}{2}y = \frac{3}{2}$

4. Solve the following **word problems**. Be sure to write a Let  $x =$  statement. Write a system of linear equations to model the situation. Solve by method of your choice.

a) At a sale, all DVD's are on sale at one price and all Xbox games at another price. Three DVD's and 2 Xbox games cost \$72. One DVD and 3 Xbox games cost \$52. Find the cost of a DVD and an Xbox game.

b) A video game club charges an annual fee and an hourly fee. In one year, Jill played a total of 15 hours and paid \$235. That same year, Karl played for 18 hours and paid \$262. Find the annual fee and the hourly fee.

c) The sum of two numbers is 64. Their difference is 14. Find the two numbers.

d) The perimeter of a rectangle is 384m. The length is 82m longer than the width. Find the length and the width.

e) A playoff football game drew 36 500 fans. Depending on seat location, some seats sold for \$35 and some for \$20. The total income from ticket sales was \$940 000. Determine the number of \$35 tickets and \$20 tickets sold?

f) The final exam consists of multiple choice and written questions. The total number of questions on the exam is 85. Jane scored 80% on the multiple choice section and 70% on the written section. Jane scored a total of 61 point on the test. Determine the number of multiple choice and written questions on the final exam?

5. Without graphing, determine the number of solutions to the equations below. One, infinite or none. Justify your choice.

a)  $y = \frac{5}{3}x + 2$

b)  $5x - 3y = 12$

c)  $2x + y = 5$

$5x - 3y - 12 = 0$

$10x - 6y - 24 = 0$

$4x + y = 9$

**Solutions:**

1a) (-1,2)      b) (-2,-3)

2a) (-3,6)      b) (4,1)      c)  $\left(-4, \frac{7}{2}\right)$

3a) (0,2)      b) (2,-1)      c) (2,1)      d)  $\left(\frac{3}{2}, \frac{1}{2}\right)$

4a) DVD = \$16 Xbox = \$12      b) Annual = \$100 Hourly = \$9      c) Larger # = 39 Smaller # = 25

d) Length = 137m Width = 55m      e) 14 000 tickets @ \$35      22 500 tickets @ \$20

f) Multiple Choice = 15 Written = 70

5a) none      b) infinite      c) one