

Review – Unit 6

1. **Verify** that $(2, -1)$ is a solution to the system of linear equations:

$$\begin{aligned}2x + y &= 3 \\4x + 3y &= 5\end{aligned}$$

2. **Verify** that $(-2, -4)$ is a solution to the system of linear equations:

$$\begin{aligned}2y + x + 10 &= 0 \\-4x + y &= 13\end{aligned}$$

3. **Verify** that $(-2, 3)$ is a solution to the system of linear equations:

$$\begin{aligned}x + 2y &= 4 \\3x + 2y &= 0\end{aligned}$$

4. Solve each system by **graphing**.

a) $3x + y = -1$
 $y = x + 3$

b) $2x - 4y = 8$
 $y = 2x + 1$

c) $2x - y = 7$
 $3x + y = 3$

d) $x + 2y = -2$
 $-2x + y = 4$

5. Solve each system by **substitution**.

a) $4x + y = -6$
 $-2x + 3y = 24$

b) $2x + y = 9$
 $x - y = 3$

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

d) $x + 4y = 6$
 $2x - 3y = 1$

e) $2x - 5y = 12$
 $x + 10y = -9$

6. Solve each system by **elimination**.

a) $2x + 3y = 6$
 $5x + 10y = 20$

b) $3a + 10b = -4$
 $4a - 5b = 13$

c) $2x - 9 = -5y$
 $-2y + 3x = 4$

d) $5x + 2y = -11$
 $3x + 2y = -9$

e) $-5c + 2d = 13$
 $4c - 6d = -6$

7. **Without solving**, determine the **number of solutions** for each linear system. Justify your answer.

a) $y = \frac{5}{3}x + 2$
 $5x - 3y - 12 = 0$

b) $5x - 3y = 12$
 $10x - 6y - 24 = 0$

c) $2x + y = 5$
 $4x + y = 9$

8. **Solve** each linear system. **Identify the method** you use (graphing, substitution or elimination) and **explain** your choice of method.

a) $4x + 10y = 0$
 $6x + 7y = 16$

b) $\frac{1}{2}x + y = \frac{3}{10}$
 $-x + 2y = \frac{3}{5}$

c) $x - \frac{1}{3}y = \frac{4}{3}$
 $\frac{5}{6}x + \frac{1}{2}y = \frac{3}{2}$

9. For each question:

- i) **Represent** each situation as a system of linear equations. **Identify** each variable.
- ii) **Solve** each linear system.

a) During a sale, three DVDs and two Xbox games cost \$72. A DVD and three Xbox games cost \$52. How much does each item cost?

b) The sum of two numbers is 64. Their difference is 14. Determine both numbers.

c) The perimeter of a rectangle is 384 m. Its length is 82 m longer than its width. What are the dimensions of the rectangle?

d) Frank scored 80% on Part A of an exam and 70% on Part B. His overall score is 61 points out of a total of 85. How many points is each game worth?

e) Fred invested \$6,000 for one year in two savings bonds. One bond earns an annual interest of 3%, and the other, an annual interest of 2%. The total interest is \$145. How much did Fred put into each bond?