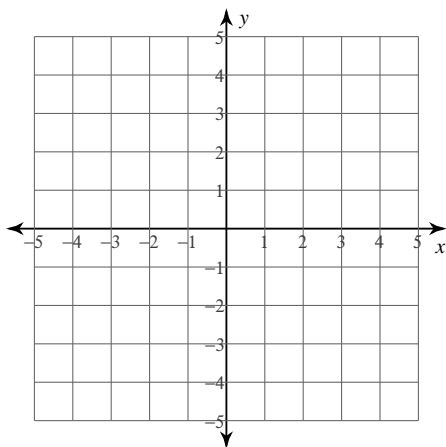
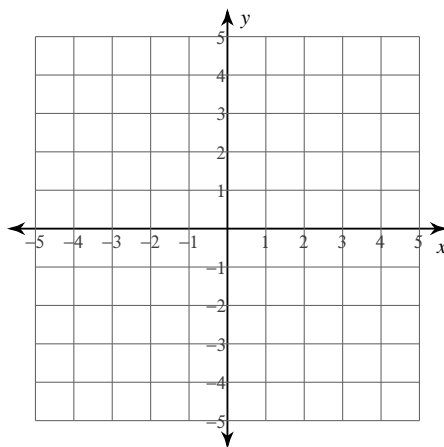


$$5) \begin{aligned} 0 &= -x + y + 3 \\ -y &= -2 - x \end{aligned}$$



$$6) \begin{aligned} -y + 3 + 4x &= 0 \\ 4x &= -4 + y \end{aligned}$$



Solve each system by either substitution or elimination. Do all your work on a separate paper. Write your answer next to each question, as an ordered pair, (x, y) .

$$7) \begin{aligned} 4x - 5y &= -15 \\ y &= -3x + 22 \end{aligned}$$

$$8) \begin{aligned} -4x - y &= 23 \\ y &= -7 \end{aligned}$$

$$9) \begin{aligned} 8x - 5y &= 8 \\ y &= 7x + 20 \end{aligned}$$

$$10) \begin{aligned} 5x + 3y &= -9 \\ y &= 2x - 3 \end{aligned}$$

$$11) \begin{aligned} -4x + 7y &= 16 \\ y &= 4x + 16 \end{aligned}$$

$$12) \begin{aligned} y &= 3x + 4 \\ -6x + 4y &= 4 \end{aligned}$$

$$13) \begin{aligned} -6x - 2y &= -20 \\ 3x + y &= 10 \end{aligned}$$

$$14) \begin{aligned} -5x + 6y &= -8 \\ x - 4y &= 24 \end{aligned}$$

$$15) \begin{aligned} -3x + y &= -12 \\ -2x - y &= -8 \end{aligned}$$

$$16) \begin{aligned} -2x + y &= -2 \\ 7x - y &= 2 \end{aligned}$$

$$17) \begin{aligned} -x - 2y &= -3 \\ x + y &= -2 \end{aligned}$$

$$18) \begin{aligned} 4x + 2y &= 0 \\ 2x + y &= 5 \end{aligned}$$

$$19) \begin{aligned} -3x - 2y &= 22 \\ y &= -5 \end{aligned}$$

$$20) \begin{aligned} 12x - 15y &= 15 \\ -4x + 5y &= -5 \end{aligned}$$

$$\begin{aligned} 21) \quad & 2x + 8y = 22 \\ & 2x + 2y = 16 \end{aligned}$$

$$\begin{aligned} 22) \quad & 6x + 2y = -18 \\ & -3x + 5y = -9 \end{aligned}$$

$$\begin{aligned} 23) \quad & -x - 5y = -16 \\ & -7x + 8y = 17 \end{aligned}$$

$$\begin{aligned} 24) \quad & 3x - 3y = 0 \\ & 3x + 7y = 0 \end{aligned}$$

Solve each system by elimination. Do all work on a separate paper. Write your answers next to the question, as an ordered pair, (x, y) .

$$\begin{aligned} 25) \quad & 4x + y = -11 \\ & 5x - y = -7 \end{aligned}$$

$$\begin{aligned} 26) \quad & -3x + 5y = 4 \\ & 3x - 3y = -6 \end{aligned}$$

$$\begin{aligned} 27) \quad & -x - 4y = 8 \\ & x - 2y = 10 \end{aligned}$$

$$\begin{aligned} 28) \quad & -2x + 4y = 14 \\ & 2x + 2y = -8 \end{aligned}$$

$$\begin{aligned} 29) \quad & -3x - 4y = -4 \\ & 3x + 6y = 0 \end{aligned}$$

$$\begin{aligned} 30) \quad & -5x + 2y = 6 \\ & 6x - 2y = -8 \end{aligned}$$

$$\begin{aligned} 31) \quad & 2x - 6y = 10 \\ & -4x - 6y = -2 \end{aligned}$$

$$\begin{aligned} 32) \quad & -x - 2y = 4 \\ & -x - 6y = 0 \end{aligned}$$

$$\begin{aligned} 33) \quad & 4x - 6y = 8 \\ & 4x - 3y = 8 \end{aligned}$$

$$\begin{aligned} 34) \quad & -2x - 2y = -4 \\ & -2x - 4y = -4 \end{aligned}$$

$$\begin{aligned} 35) \quad & -x + 5y = -18 \\ & -x + 4y = -14 \end{aligned}$$

$$\begin{aligned} 36) \quad & -6x + 4y = 6 \\ & -6x + 6y = 6 \end{aligned}$$

$$\begin{aligned} 37) \quad & -2x + 2y = -2 \\ & -3x - 8y = 8 \end{aligned}$$

$$\begin{aligned} 38) \quad & -x - 2y = -4 \\ & 6x + 4y = -16 \end{aligned}$$

$$\begin{aligned} 39) \quad & -2x + 4y = 4 \\ & 4x - 3y = -18 \end{aligned}$$

$$\begin{aligned} 40) \quad & 3x - 8y = 18 \\ & 6x - 4y = 0 \end{aligned}$$

$$\begin{aligned} 41) \quad & -2x - 6y = -4 \\ & -3x - 3y = -6 \end{aligned}$$

$$\begin{aligned} 42) \quad & 5x - 3y = -12 \\ & 3x + y = -10 \end{aligned}$$

$$\begin{aligned} 43) \quad & -3x - 3y = -12 \\ & 4x + 2y = 4 \end{aligned}$$

$$\begin{aligned} 44) \quad & -5x + 6y = 5 \\ & -3x - 5y = 3 \end{aligned}$$

$$\begin{aligned} 45) \quad & 6x + 6y = 6 \\ & -4x - 5y = -5 \end{aligned}$$

$$\begin{aligned} 46) \quad & -3x + 4y = 8 \\ & 4x - 5y = -11 \end{aligned}$$

Define variables for each question. Write a system of equations. Tell whether you are using "elimination" or "substitution" to solve. Solve. (Show work on separate paper and write answer as a sentence below the question.)

47) Stefan's school is selling tickets to the annual dance competition. On the first day of ticket sales the school sold 13 adult tickets and 2 student tickets for a total of \$78. The school took in \$143 on the second day by selling 13 adult tickets and 7 student tickets. Find the price of an adult ticket and the price of a student ticket.

48) The sum of two numbers is 19. Their difference is 1. What are the numbers?

49) Molly and Ryan are selling pies for a school fundraiser. Customers can buy apple pies and lemon meringue pies. Molly sold 11 apple pies and 11 lemon meringue pies for a total of \$242. Ryan sold 4 apple pies and 11 lemon meringue pies for a total of \$193. What is the cost each of one apple pie and one lemon meringue pie?

50) The sum of two numbers is 20. Their difference is 6. What are the numbers?

51) The difference of two numbers is 7. Their sum is 21. Find the numbers.

- 52) The school that Jimmy goes to is selling tickets to the annual talent show. On the first day of ticket sales the school sold 7 senior citizen tickets and 13 student tickets for a total of \$214. The school took in \$114 on the second day by selling 7 senior citizen tickets and 3 student tickets. What is the price each of one senior citizen ticket and one student ticket?
- 53) The senior classes at High School A and High School B planned separate trips to Yellowstone National Park. The senior class at High School A rented and filled 14 vans and 1 bus with 153 students. High School B rented and filled 14 vans and 7 buses with 483 students. Each van and each bus carried the same number of students. How many students can a van carry? How many students can a bus carry?
- 54) The indoor climbing gym is a popular field trip destination. This year the senior class at High School A and the senior class at High School B both planned trips there. The senior class at High School A rented and filled 12 vans and 13 buses with 772 students. High School B rented and filled 9 vans and 13 buses with 748 students. Each van and each bus carried the same number of students. Find the number of students in each van and in each bus.
- 55) Matt and Natalie each improved their yards by planting rose bushes and shrubs. They bought their supplies from the same store. Matt spent \$83 on 14 rose bushes and 11 shrubs. Natalie spent \$65 on 5 rose bushes and 11 shrubs. Find the cost of one rose bush and the cost of one shrub.
- 56) Totsakan and Kristin are selling fruit for a school fundraiser. Customers can buy small boxes of tangerines and large boxes of tangerines. Totsakan sold 6 small boxes of tangerines and 9 large boxes of tangerines for a total of \$180. Kristin sold 12 small boxes of tangerines and 2 large boxes of tangerines for a total of \$168. What is the cost each of one small box of tangerines and one large box of tangerines?

Answers to Solving Systems of Equations

- 1) (1, 3) 2) (-1, 1) 3) (-2, 1) 4) (-1, -3)
5) No solution 6) No solution 7) (5, 7) 8) (-4, -7)
9) (-4, -8) 10) (0, -3) 11) (-4, 0) 12) (-2, -2)
13) Infinite number of solutions 14) (-8, -8) 15) (4, 0)
16) (0, -2) 17) (-7, 5) 18) No solution 19) (-4, -5)
20) Infinite number of solutions 21) (7, 1) 22) (-2, -3)
23) (1, 3) 24) (0, 0) 25) (-2, -3) 26) (-3, -1)
27) (4, -3) 28) (-5, 1) 29) (4, -2) 30) (-2, -2)
31) (2, -1) 32) (-6, 1) 33) (2, 0) 34) (2, 0)
35) (-2, -4) 36) (-1, 0) 37) (0, -1) 38) (-6, 5)
39) (-6, -2) 40) (-2, -3) 41) (2, 0) 42) (-3, -1)
43) (-2, 6) 44) (-1, 0) 45) (0, 1) 46) (-4, -1)
47) adult ticket: \$4, student ticket: \$13 48) 9 and 10
49) apple pie: \$7, lemon meringue pie: \$15 50) 7 and 13 51) 7 and 14
52) senior citizen ticket: \$12, student ticket: \$10 53) Van: 7, Bus: 55 54) Van: 8, Bus: 52
55) rose bush: \$2, shrub: \$5
56) small box of tangerines: \$12, large box of tangerines: \$12