

1. Mr. Frankel bought 5 tickets to a puppet show and spent \$34. He bought some child tickets for \$5 each and some adult tickets for \$8 each. Which system of equations could you use to determine the number of adult tickets, a , and the number of child tickets, c , that he bought?

$$[A] \quad \begin{cases} a = c - 8 \\ 8a + 5c = 34 \end{cases}$$

$$[B] \quad \begin{cases} 8a + 5c = 34 \\ a + c = 5 \end{cases}$$

$$[C] \quad \begin{cases} 8a + 5c = 34 \\ a + c = 5 \end{cases}$$

$$\begin{cases} 8a + 5c = 34 \\ a + c = 5 \end{cases}$$

If a and c represent number of tickets and Mr. Frankel bought both child and adult tickets, how many possible solutions exist for the second equation? List them.

Which of these solutions is also a solution to the first equation?

Solve the system using substitution or elimination.

2. A cash drawer contains \$10 and \$20 bills. There are 43 bills in all. The number of \$10 bills is 3 more than 3 times the number of \$20 bills. Which system of equations could be used to find the number of \$20 bills that are in the cash drawer?

$$[A] \begin{cases} 10x + 20y = 43 \\ x - 3 = 3y \end{cases}$$

$$[B] \begin{cases} x + y = 43 \\ x - 3 = 3y \end{cases}$$

$$[C] \begin{cases} x + y = 43 \\ x + 3 = 3y \end{cases}$$

$$[D] \begin{cases} 10x + 20y = 43 \\ x + 3 = 3y \end{cases}$$

3. First solve this system of equations graphically.

$$\begin{cases} 2y - x = 6 \\ x + 4y = 8 \end{cases}$$

Use some other technique (substitution, elimination, or tables) to solve the system of equations. Show the work that leads to your answer.

4. Solve this system using tables.

$$\begin{cases} y = 1 - x \\ y = 3x + 5 \end{cases}$$

Confirm your solution by solving the system by one other method (substitution, elimination, or graphically). Show the work that leads to your answer.

5. The total tuition for students at college A and college B consists of student fees plus costs per credit. The table shows the total tuition for programs with different numbers of credits at each college.

Credits	College A (\$)	College B (\$)
1	108	46
3	156	108
6	228	201
9	300	294
12	372	387
15	444	480

- Write a system of equations that represents the relationship between credit hours and total tuition for each college.
- Graph this system of equations.
- What is an approximate solution for this system of equations?
- What is the real-world meaning of this approximate solution?

6. An ice skating arena charges an admission fee for each child plus a rental fee for each pair of ice skates. John paid the admission fees for his four nephews and rented three pairs of ice skates. He was charged \$24.50. Juanita paid the admission fees for her four grandchildren and rented two pairs of ice skates. She was charged \$21.00. Let f represent the admission fee charged for each child and s represent the cost of renting a pair of skates. Write two equations that can describe the situation described. Solve this system of equations using any method. Does this answer make sense to you. Why or why not?

7. Train A leaves a station traveling at 96 kilometers per hour. Four hours later, train B leaves the same station traveling in the same direction at 116 kilometers per hour. If **D** represents the distance both trains travel before Train B catches up with Train A and **t** represents how long Train A travels, write an equation that represent the distance Train A travels and an equation that represents the distance Train B travels. Use any methods to solve this system of equations.

8. Laurinda sold magazine subscriptions. This table shows the cost of each magazine.

Magazine Subscription	Cost
Student Life (S)	\$12
Xtreme Sports (X)	\$11
Music Craze (M)	\$19

She sold 30 subscriptions in all. She sold 5 fewer of the Student Life subscriptions than of the Xtreme Sports subscriptions. Her total sales were \$440.

Write a system of three equations that could be used to relate all the variables described in this problem.

Select a method that could be used to solve this system of equations.

How many of each subscription did Laurinda sell? Show work that leads to your answer.

9. The county fair offers two ticket options.

Ticket option	Admission price	Price per ride
A	\$3	30 ¢
B	\$1	70 ¢

a. Write an equation that shows the cost for each option.

b. Use two method to solve the system of equations.

c. Interpret the solution to this system in terms of cost and rides.

10. The Modern Grocery has cashews that sell for \$4.25 a pound and peanuts that sell for \$2.50 a pound. How much of each must Albert, the grocer, mix to get 70 pounds of mixture that he can sell for \$3.00 per pound? Express the problem as a system of linear equations and use any method to solve the system. Explain why you chose this method.