

- Lesson in PowerPoint and PDF format
- 3 Worksheets
- 2 Challenge Activities
- Full worked solutions

Problem Solving Using Systems	Problem Solving Using Systems
Ex 1 The sum of three numbers is 14. The sum of twice the first number, three times the second number, and four times the third number is 34. Find the numbers.	Ex 1 A group of 40 students at a school of 120 students took a field trip. The group was made up of 10 boys and 30 girls. The group was made up of 10 boys and 30 girls. The group was made up of 10 boys and 30 girls.
Ex 2 The sum of three numbers is 14. The sum of twice the first number, three times the second number, and four times the third number is 34. Find the numbers.	Ex 2 The sum of three numbers is 14. The sum of twice the first number, three times the second number, and four times the third number is 34. Find the numbers.
Ex 3 The sum of three numbers is 14. The sum of twice the first number, three times the second number, and four times the third number is 34. Find the numbers.	Ex 3 The sum of three numbers is 14. The sum of twice the first number, three times the second number, and four times the third number is 34. Find the numbers.
Answer: 10, 20, 30	Answer: 10, 20, 30
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Multiple Choice Questions	Short Answer Questions	Short Answer Questions
1. What is the main purpose of the document? 2. Which of the following is NOT a goal of the project? 3. What is the estimated cost of the project? 4. What is the estimated duration of the project? 5. What is the estimated risk of the project?	1. What is the main purpose of the document? 2. Which of the following is NOT a goal of the project? 3. What is the estimated cost of the project? 4. What is the estimated duration of the project? 5. What is the estimated risk of the project?	1. What is the main purpose of the document? 2. Which of the following is NOT a goal of the project? 3. What is the estimated cost of the project? 4. What is the estimated duration of the project? 5. What is the estimated risk of the project?
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Problem Solving Using Systems Ex. 1. The sum of two numbers is 10. The smaller number is 2 less than the larger number. Let x = the smaller number Let y = the larger number $\begin{cases} x + y = 10 \\ x = y - 2 \end{cases}$ Substitution method $\begin{aligned} x + y &= 10 \\ x &= y - 2 \end{aligned}$ $(y - 2) + y = 10$ $2y - 2 = 10$ $2y = 12$ $y = 6$ Substitution method $\begin{aligned} x + y &= 10 \\ x &= y - 2 \end{aligned}$ $x + 6 = 10$ $x = 4$ Check the solution $\begin{aligned} x + y &= 10 \\ 4 + 6 &= 10 \end{aligned}$ Answer: 2, 8, 10	Problem Solving Using Systems Ex. 2. The sum of two numbers is 20. The larger number is 4 more than the smaller number. Let x = the smaller number Let y = the larger number $\begin{cases} x + y = 20 \\ y = x + 4 \end{cases}$ Substitution method $\begin{aligned} x + y &= 20 \\ x + (x + 4) &= 20 \end{aligned}$ $2x + 4 = 20$ $2x = 16$ $x = 8$ Substitution method $\begin{aligned} x + y &= 20 \\ x + (x + 4) &= 20 \end{aligned}$ $x + 12 = 20$ $x = 8$ Check the solution $\begin{aligned} x + y &= 20 \\ 8 + 12 &= 20 \end{aligned}$ Answer: 8, 12, 20
Problem Solving Using Systems Ex. 3. The sum of two numbers is 15. The larger number is 3 more than the smaller number. Let x = the smaller number Let y = the larger number $\begin{cases} x + y = 15 \\ y = x + 3 \end{cases}$ Substitution method $\begin{aligned} x + y &= 15 \\ x + (x + 3) &= 15 \end{aligned}$ $2x + 3 = 15$ $2x = 12$ $x = 6$ Substitution method $\begin{aligned} x + y &= 15 \\ x + (x + 3) &= 15 \end{aligned}$ $x + 9 = 15$ $x = 6$ Check the solution $\begin{aligned} x + y &= 15 \\ 6 + 9 &= 15 \end{aligned}$ Answer: 6, 9, 15	Problem Solving Using Systems Ex. 4. The sum of two numbers is 25. The larger number is 5 more than the smaller number. Let x = the smaller number Let y = the larger number $\begin{cases} x + y = 25 \\ y = x + 5 \end{cases}$ Substitution method $\begin{aligned} x + y &= 25 \\ x + (x + 5) &= 25 \end{aligned}$ $2x + 5 = 25$ $2x = 20$ $x = 10$ Substitution method $\begin{aligned} x + y &= 25 \\ x + (x + 5) &= 25 \end{aligned}$ $x + 15 = 25$ $x = 10$ Check the solution $\begin{aligned} x + y &= 25 \\ 10 + 15 &= 25 \end{aligned}$ Answer: 10, 15, 25

The "Sub" Way

- In groups of three, have each person in the group solve one of the systems below.
- Share your solutions with each person in the group.

System A	System B
$\begin{aligned} x + 4y + 2z &= 12 \\ 2x + 3y + 5z &= -12 \end{aligned}$	$\begin{aligned} 3x + y + 4z &= 10 \\ 2x + 3y + 5z &= -12 \end{aligned}$
System C $x + 4y + 2z = 12$	System D $3x + y + 4z = 10$

System E

$$x + 4y + 2z = 12$$

System F

CHALLENGE: PUTTING IT TO THE TEST

Systems E, B, and C are used to find the equation of the line that connects the three points.

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MORE OR LESS EQUAL.
Using on separate paper. For each of the following,
re-express the various situations,
of the graphs, and
action to solve each problem.

[illegible]