Solve real-world problems using systems of linear equations.

1) At a carnival, 700 tickets were sold for a total amount of $5,500. An adult ticket cost $10 and a children’s ticket cost $5. Find the number of adult tickets and the number of children’s tickets sold.

<table>
<thead>
<tr>
<th>Number of Tickets</th>
<th>Ticket Sales (dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult Tickets</td>
<td></td>
</tr>
<tr>
<td>Children’s Tickets</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
</tr>
</tbody>
</table>

- Define the variables:

- Translate
  - Relate the sales of the tickets:
    - Relate the number of tickets:

- Solve the system: Use any method.

- Conclusion: Write the answer in the context of the problem.
2) The difference between the length $\ell$ and width $w$ of one face of a box is 4 inches. The face has a perimeter of 52 inches. Find the length and width.

- Define the variables:

- Translate the given information (note: Perimeter = $2\ell + 2w$)

- Solve the system:

- Conclusion:

*Try this one on your own:*

Two bowls and one cup have a mass of 800 grams. One bowl and two cups have a mass of 700 grams. Find the mass of a bowl and the mass of a cup.
Number Theory Riddles

Sasha has a riddle: There are two numbers. The sum of the first number and twice the second number is 14. When the second number is subtracted from the first number, the result is 2. What are the two numbers?

- Define the variables:

- Translate the given information

- Solve the system:

- Conclusion:

Christopher is thinking of two positive integers. The sum of the integers is 27. When twice the first integer is added to half of the second integer, the sum is 24. Find the integers.

- Define the variables:

- Translate the given information (note: Perimeter = 2l + 2w)

- Solve the system:

- Conclusion: