1. **Real number** What is the smallest value the expression \( x + 10x^2 \) can have, if \( x \) is a real number?

2. **Pattern** Determine the pattern and find the next number in this sequence.
   1, 256, 2187, 4096, 3125, 1296, … .

3. **Three** Find two numbers whose quotient and difference both equal 3.

4. **Product** Find a positive number such that the product of \( \frac{1}{5} \) of the number and \( \frac{1}{9} \) of the number equals the number.

5. **Water containers** You have a 24-L container that is full of water. You also have three empty containers that can hold 5 L, 11 L, and 13 L. How can you use the containers to divide the water into three equal parts?

6. **Number puzzle** If you reduce a certain number by 8 and multiply the result by 8, you get the same answer as if you reduce the number by 9 and multiply the result by 9.
   a) What is the number?
   b) Use algebra to explain.

7. **Fenced field** A rectangular field is half as wide as it is long and is completely enclosed by \( x \) metres of fencing. Express the area of the field in terms of \( x \).

8. **Solutions** Find the number of solutions to the equation \( 2x + 3y = 715 \), if \( x \) and \( y \) must be positive integers.

9. **Hockey** The chart gives the standings in a four-team hockey league after each team played every other team once. Determine the score of each game.

<table>
<thead>
<tr>
<th>Team</th>
<th>Won</th>
<th>Lost</th>
<th>Tied</th>
<th>Goals For</th>
<th>Goals Against</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spartans</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>5</td>
<td>2</td>
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<tr>
<td>Penguins</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Ravens</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Eagles</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>4</td>
</tr>
</tbody>
</table>

10. **Power of 2** Evaluate \( 79999999999^2 \).

11. **Two numbers** The sum of two numbers is 4 and their product is 6. What is the sum of the squares of the reciprocals of these numbers?

12. **System of equations** Solve the following system of equations.
   
   \[
   a + b + c = 9 \\
   ab + bc + ac = 26 \\
   abc = 24
   \]

13. **Same digits** A four-digit number, whose digits are the same, is divided by the sum of the digits.
   
   For example, \( \frac{4444}{4 + 4 + 4 + 4} = \frac{4444}{16} = 277.75 \)

   Explain why the result is 277.75 for any four-digit number whose digits are the same.

14. **Perfect** Find \( n \) such that \( \frac{n}{2} \) is a perfect square and \( \frac{n}{3} \) is a perfect cube.