

Pick any 3 digits (the digits cannot be equal). Order the digits from highest to lowest to create the largest number. Next, order the digits from lowest to highest to create the smallest number. Find the positive difference between the two numbers. Investigate different solutions you find. Are there patterns? If so, what patterns did you find?

1. Do two different 3-digit numbers produce the same solution (difference) when following the process?
2. What can you predict about the solutions (differences) in terms of specific digits (hundreds, tens, ones)?
3. What other relationships are there between the digits?
4. Explain your findings.