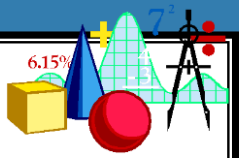
Mathematics, Algebra I
Unit III: Lesson A3

Tricks / Report: **1089!**



Start with a three-digit number in which the hundreds digit is at least two more than the units digit. Reverse the digits to make a new number and subtract the smaller number from the larger to obtain a difference. Now reverse the digits of the difference to create another number and add the two numbers. This sum is a constant! Do this with several different three-digit numbers.

Example:	723	396
	-327	+693
	396	1089

Using some algebra and your knowledge of place value, show that the resulting sum is always a constant. Now investigate what happens if you change one part of the problem at a time. Use the following or try an idea of your own. What if only two-digit numbers are used? What if the hundreds digit is not at least two more than the ones digit? What if we reverse the hundreds and tens digits instead?

Write a report of your findings including your proof of why the original trick worked, the results of the variations you investigated, and an explanation of these results.