

Puzzle of the Week

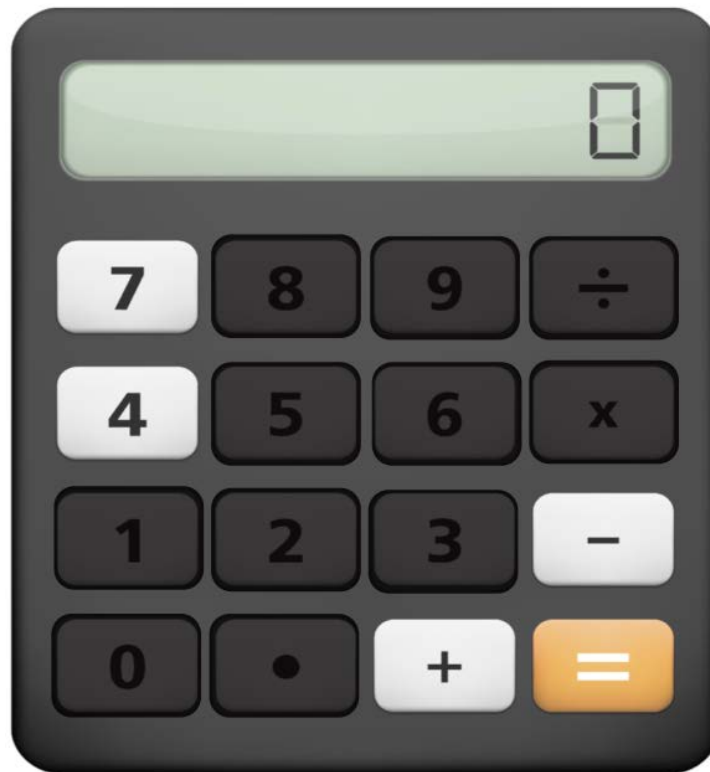
Broken Calculator – 1

You have a calculator that is badly broken. Its only working keys are 4, 7, +, and -. Even with this limited ability, it is possible to make every number. For example:

$$1 = 4 + 4 - 7$$

$$2 = 4 + 4 + 4 + 4 - 7 - 7$$

THE CHALLENGE: Show that this calculator can make all the numbers from 1 to 12.



EXPLORATION: Replace 4 and 7 by other pairs of numbers. When is it possible to get all the numbers from 1 to 12, and when is it impossible? Can you look at a pair of numbers and predict what will happen?