Worksheet §0

Remember to

- come up with a group name

- email me (ssharif@csusm.edu) your group name and the full names of the members of your group

- assign someone to write down your work in a single place; this duty should rotate

I will come around to assist and assign grades out of 3. You are graded on teamwork and effort—as long as everyone is contributing, your group will get a 3.

1. Define an operation $\triangle$ on a pair of numbers a, b by

$$a \triangle b = ab - a.$$

   Compute $2\triangle(4\triangle3)$.

2. Find all numbers between 10 and 100 that have an odd number of factors. (Only count positive numbers as factors. So the factors of 10 are 1, 2, 5, and 10.)

3. A bacterial colony is placed in a jar at 12 pm. The population of bacteria doubles every minute. If the jar is full at 1 pm, at what time was it half full?

4. If a and b are positive whole numbers, we can define multiplication by

$$a \times b = \underbrace{a + a + \cdots + a}_{b \text{ times}}.$$

   Explain why multiplication is commutative; that is, why does $a \times b = b \times a$?