



Chapel Hill Math Circle

*Beginners' Group*

## Triangular Numbers

February 11, 2017

1. Notice that the triangle below has 10 pennies arranged in 4 rows. How many pennies do you need to make triangles with 20 rows?



2. At a Scouts meeting, 12 members shake hands with every other member exactly once. What is the total number of handshakes?

- a. How many handshakes will there be if there are 20 members?
  - b. How many handshakes for  $n$  members, where  $n$  is any natural number?
3. What is the sum of the first 20 even numbers ( $2 + 4 + 6 + \dots + 16 + 18 + 20$ )?