because it is the sum of the first male number and the first female number \((2 + 3)\). Figurate numbers are divided into triangular numbers, square numbers, pentagonal numbers et cetera. They correspond to patterns of dots in triangles, squares, pentagons et cetera. Triangular numbers are obtained by adding 2 then 3 then 4 et cetera to the number 1 i.e. \(1 + 2 = 3, 3 + 3 = 6, 6 + 4 = 10, 10 + 5 = 15\) et cetera. This corresponds to triangles of 2 on a side, 3 on a side, 4 on a side et cetera. Square numbers correspond to squares of 2 wide, 3 wide, 4 wide et cetera; which can be obtained by adding 3 then 6 then 7 et cetera to the number 1. The other are similar. Pythagorean triples are what Pythagoras is most famous for. They are integers which fulfill the condition \(a^2 + b^2 = c^2\), and \(a, b,\) and \(c\) will be the lengths of the sides of a right triangle. Pythagoras developed a formula to figure out such numbers:

\[
n^2 + (-n^2 - 1)^2 = (-n^2 + 1)^2
\]

where \(n\) is an odd integer.

"One day Pythagoras discovered what was to him an incredible fact: there were numbers which were neither integers nor fractions!"28 He was making an icosoles right triangle and found the hypotenuse to have a length of \(\sqrt{2}\) which he found no integer nor fraction for. He, however, could not prove it was irrational. It was Hippasus, one of Pythagoras' students, who proved \(\sqrt{2}\) to be irrational. Later Theodorus proved \(\sqrt{5}, \sqrt{b}\) et cetera to be irrational.

28 Leon Perry, The Mathmen, page 40