

Assignment 1

Oral questions

1. There are two accounts how Thales calculated the height of a pyramid in Egypt. According to Hieronymus, a pupil of Aristotle, Thales compared the shadow of the pyramid to a shadow of a man at the moment, when the man's shadow was equal to his height. In the later version of the story, given by Plutarch, Thales set up a stick, and used similar triangles. Both versions fail to mention the difficulty of obtaining the length of the shadow of the pyramid, measured from the center of its base. Devise a method, based on similar triangles that determines the height of a pyramid from two shadow observations (made at different times of the same day).
2. 1.1/8

Questions to be answered in writing

1. List all primitive Pythagorean triples with $b = 20$ and find the number of all primitive Pythagorean triples with $b = 30$. (Here b is one of the legs and you have to justify all your answers.)
2. 1.1/10