

Exercises — Geometry: angles and triangles

1. The Indian mathematician Brahmagupta posed the following problem about 1400 years ago. A bamboo 18 cubits high was broken by the wind. Its top touched the ground 6 cubits from the root. Tell the lengths of the segments of the bamboo. (A note for those unfamiliar with the nature of bamboos: it should be understood that the bamboo still stands perpendicular to the ground at its root.)
2. A quarter is 0.02 meters in diameter. When held against the moon at a distance of 2.1 meters from the eye it precisely blocks out the moon. The diameter of the moon is 3,500,000 meters. How far is the moon from the earth?
3. The earth is approximately 93 million miles from the sun. Assuming that the earth's orbit is circular, how far does the earth move along its orbit in one day? You may use the crude approximation $\pi = 3$.