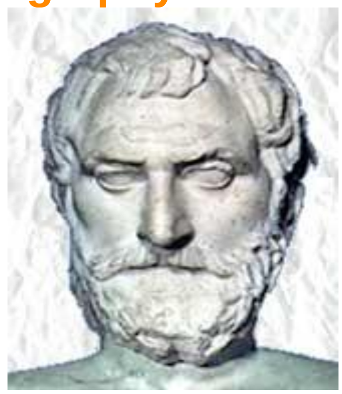
Biography of Thales

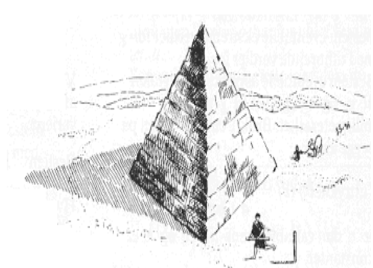


Born Approximately 624 BC, Miletus, Asia Minor. (Now Balat, Turkey)

Died Approximately 547 BC

Thales, an engineer by trade, was the first of the Seven Sages, or wise men of Ancient Greece. Thales is known as the first Greek philosopher, mathematician and scientist. He founded the geometry of lines, so is given credit for introducing abstract geometry.

He was the founder of the Ionian school of philosophy in Miletus, and the teacher of Anaximander. During Thales' time, Miletus was an important Greek metropolis in Asia Minor, known for scholarship. Several schools were founded in Miletus, attracting scientists, philosophers, architects and geographers



While Thales was in Egypt, he was supposedly able to determine the height of a pyramid by measuring the length of its shadow when the length of his own shadow was equal to his height.

Thales is credited with the following five theorems of geometry:

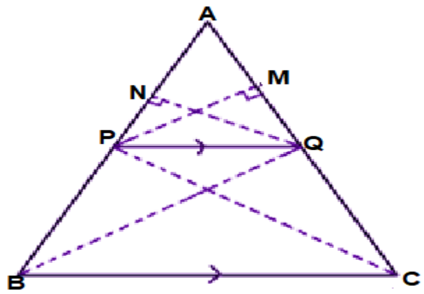
1. A circle is bisected by its diameter.
2. Angles at the base of any isosceles triangle are equal.
3. If two straight lines intersect, the opposite angles formed are equal.
4. If one triangle has two angles and one side equal to another triangle, the two triangles are equal in all respects. (See Congruence)
5. Any angle inscribed in a semicircle is a right angle. This is known as Thales' Theorem.

Thales Theorem Statement
(Basic Proportionality Theorem)

Statement: If a line is drawn parallel to one side of a triangle intersecting the other two sides in distinct points, then the other two sides are divided in the same ratio.

Basic Proportionality Theorem Proof

Given: In ΔABC, a line PQ parallel to the side BC and intersecting the sides AB and AC in P and Q respectively.



To Prove: $\frac{AP}{PB} = \frac{AQ}{QC}$

Construction: Draw PM⊥ AC, QN⊥ AB And join B to Q and C to P.

Proof: **Area of a triangle= 1/2× Base × Height)**

$$ar\ (\Delta APQ) = \frac{1}{2} \times AP \times QN \_\_\_\_\_\_\_\_\_\_ (i)$$

Similarly, $ar\ (\Delta PBQ) = \frac{1}{2} \times PB \times QN \_\_\_\_\_\_\_\_\_\_ (ii)$

Now, if we find the ratio of the area of triangles

Equation (i) ÷(ii)

$$\frac{ar\ (\Delta APQ)}{ar\ (\Delta PBQ)} = \frac{\frac{1}{2} \times AP \times QN}{\frac{1}{2} \times PB \times QN} = \frac{AP}{PB} \_\_\_\_\_\_\_\_\_\_\_\_ (a)$$

$$\frac{ar\ (\Delta APQ)}{ar\ (\Delta QCP)} = \frac{\frac{1}{2} \times AQ \times PM}{\frac{1}{2} \times QC \times PM} = \frac{AQ}{QC}$$

According to the property of triangles, the triangles drawn between the same parallel lines and on the same base have equal areas.

Therefore ar (ΔPBQ) = ar (ΔQCP)

$$\frac{ar\ (\Delta APQ)}{ar\ (\Delta PBQ)} = \frac{\frac{1}{2} \times AQ \times PM}{\frac{1}{2} \times QC \times PM} = \frac{AQ}{QC} \_\_\_\_\_\_\_\_\_\_\_\_ (b)$$

From Eqn. (a) and (b) we get

$$\frac{AP}{PB} = \frac{AQ}{QC}$$

Hence Proved