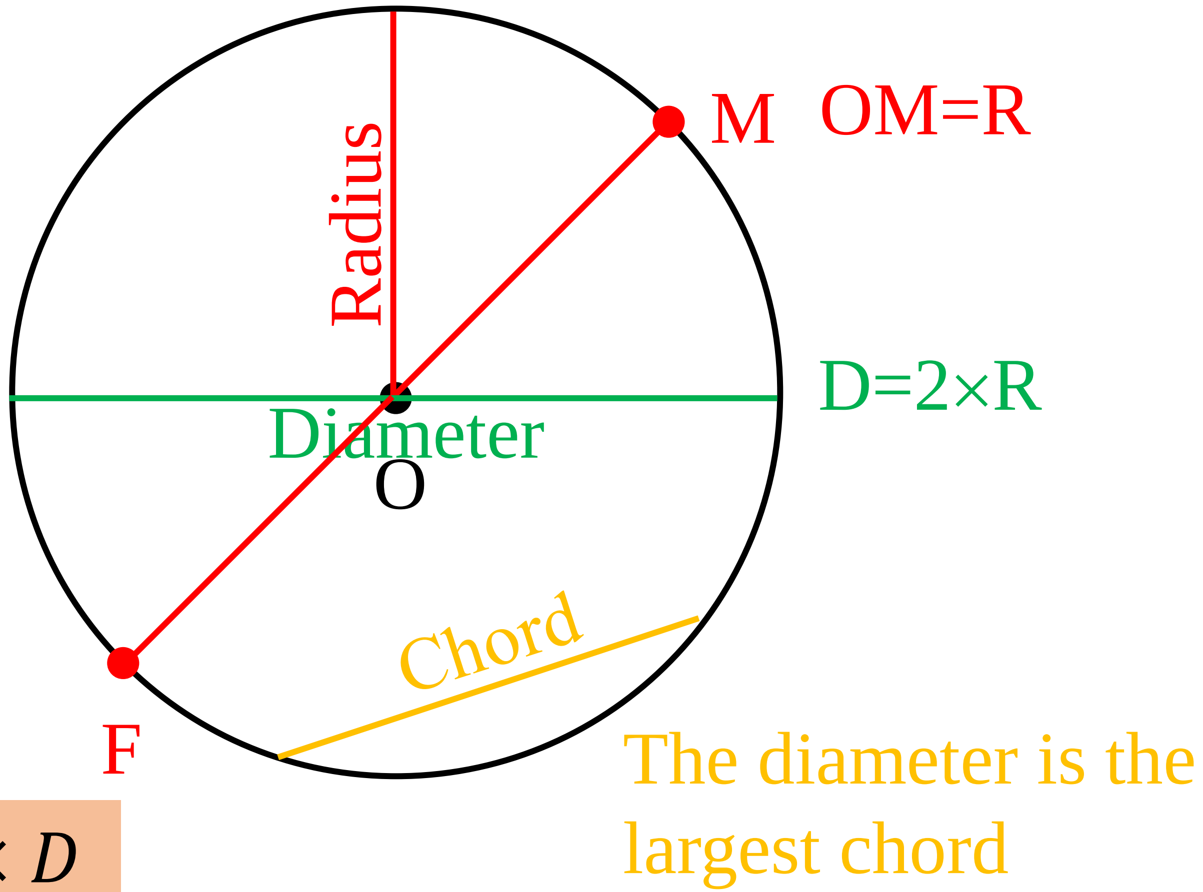
Revision Geometry

Circle, arc and angles

Circle

F is diametrically opposite to M:

[MF] is a diameter



Perimeter: $P = 2\pi R = \pi \times D$

Area: $A = \pi R^2 = \frac{\pi D^2}{4}$

Circle, arc and angles

Arc and angles

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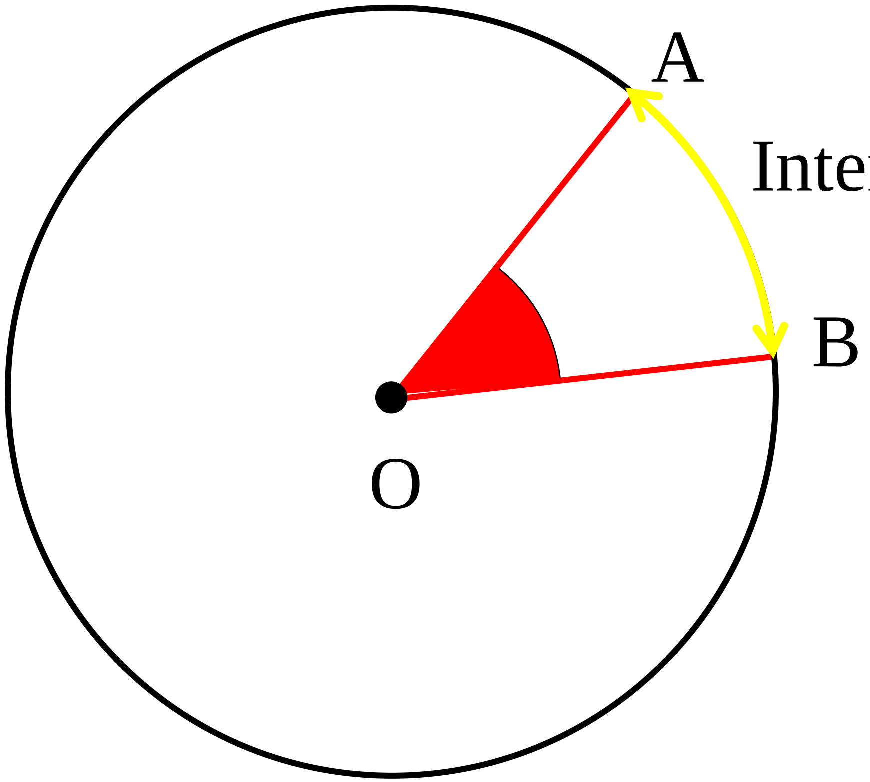
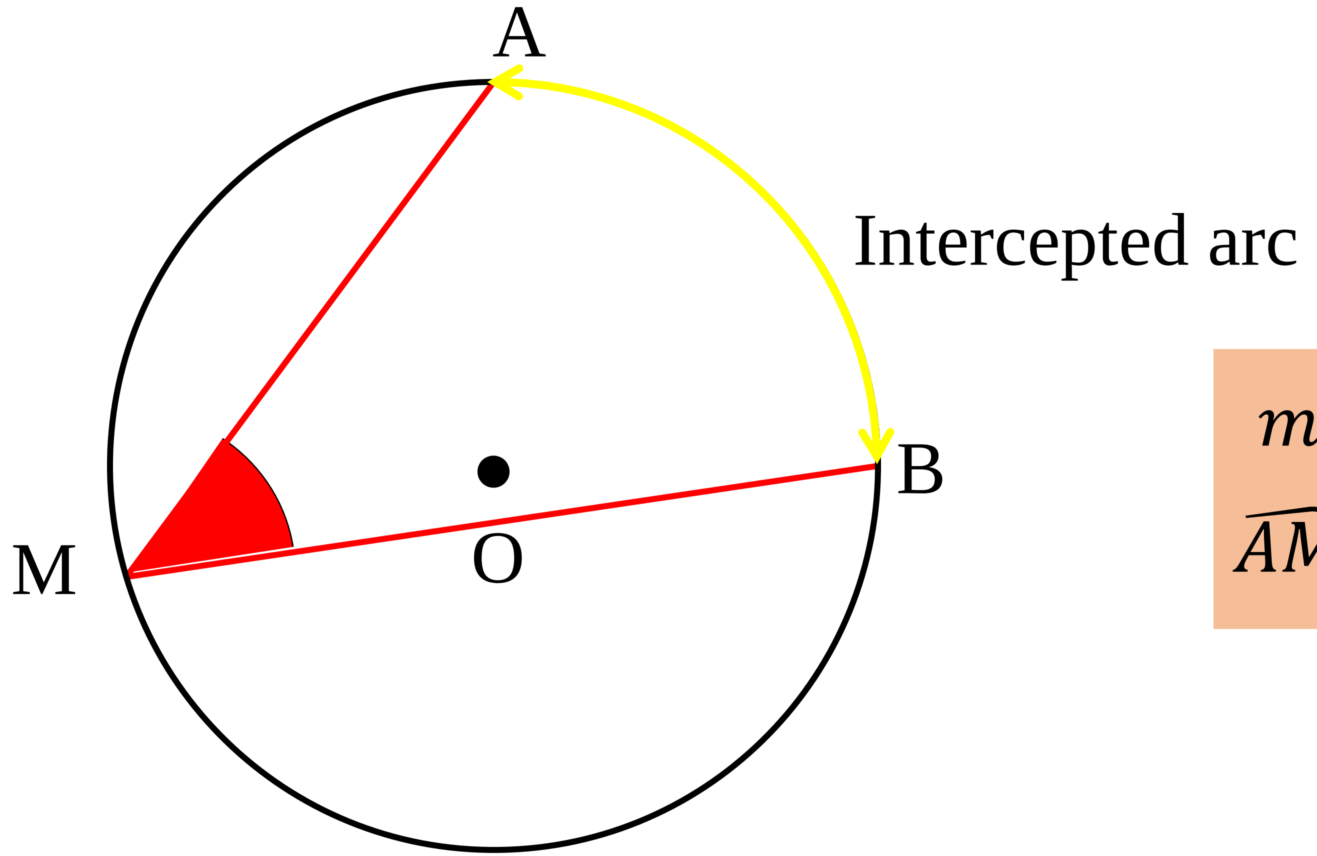


$$mes\ \widehat{AB} = \widehat{AOB}$$

Circle, arc and angles

Arc and angles

❷



$$mes\ \widehat{AB} = 2\widehat{AMB}$$

$$\widehat{AMB} = \frac{mes\widehat{AB}}{2}$$

Circle, arc and angles

Arc and angles

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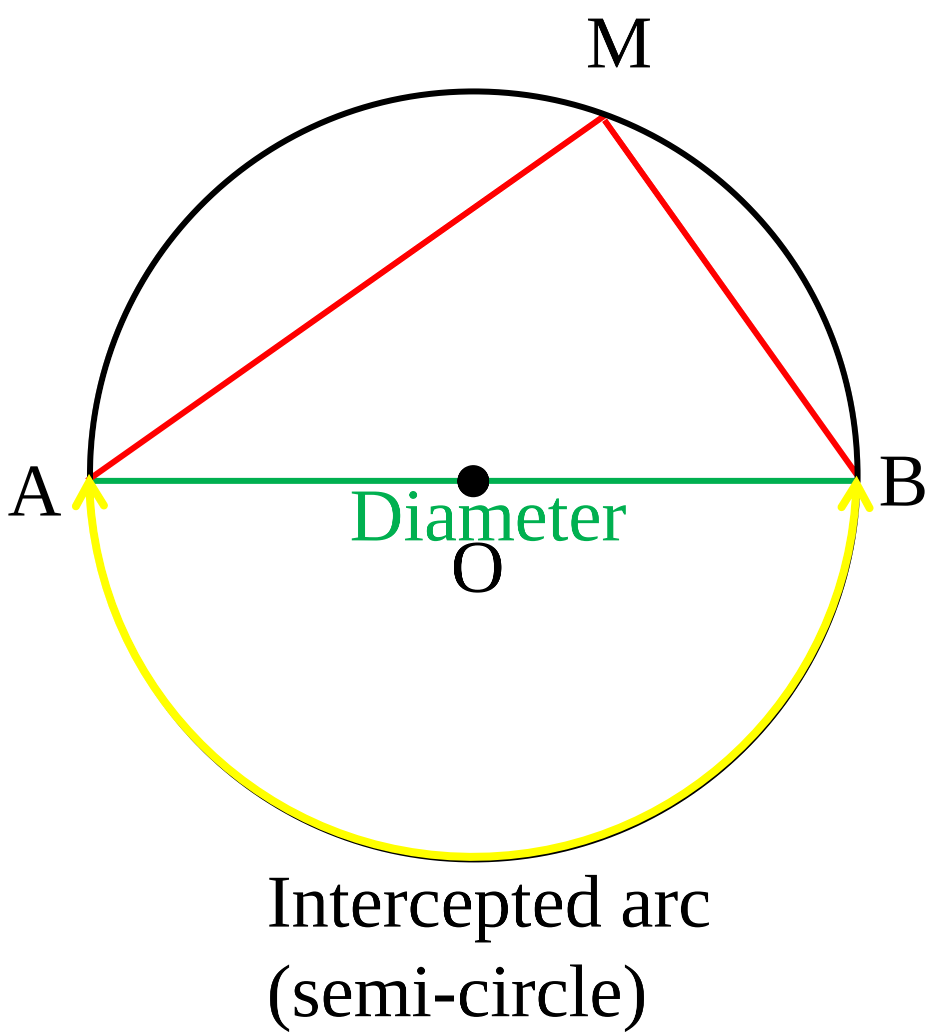


$$\widehat{AMB} = \frac{mes\widehat{AB}}{2} = \frac{180°}{2} = 90°$$

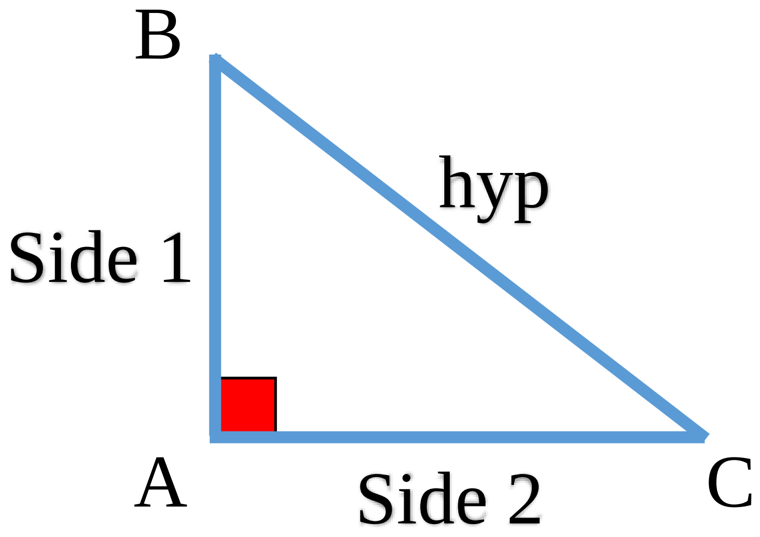
In general:
$\widehat{AMB} = 90°$ angle inscribed in a semi circle of diameter [AB]

Theorems

Pythagoras theorem

Condition:

ABC is a right triangle at A



Result:

$$\text{hyp}^2 = \text{side1}^2 + \text{side2}^2$$
$$BC^2 = AB^2 + AC^2$$

Theorems

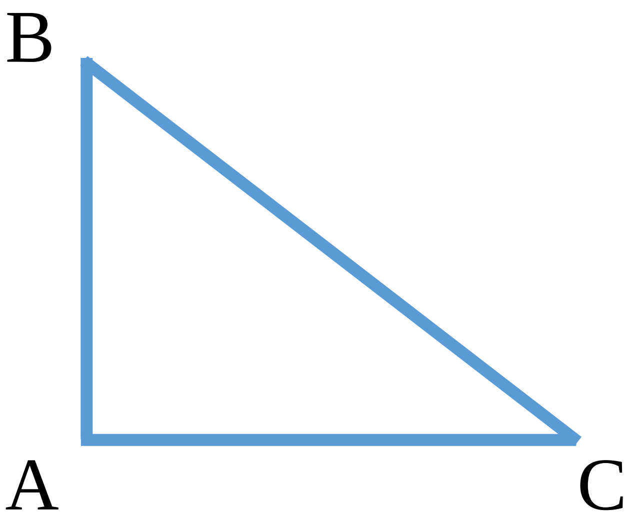
Converse of Pythagoras theorem

Condition:

Length of the three sides is given and
$BC^2 = AB^2 + AC^2$

Result:

ABC is a right triangle at A



Converse of Pythagoras theorem is used always to show that a triangle is right

Theorems

Midpoint theorem

Condition:

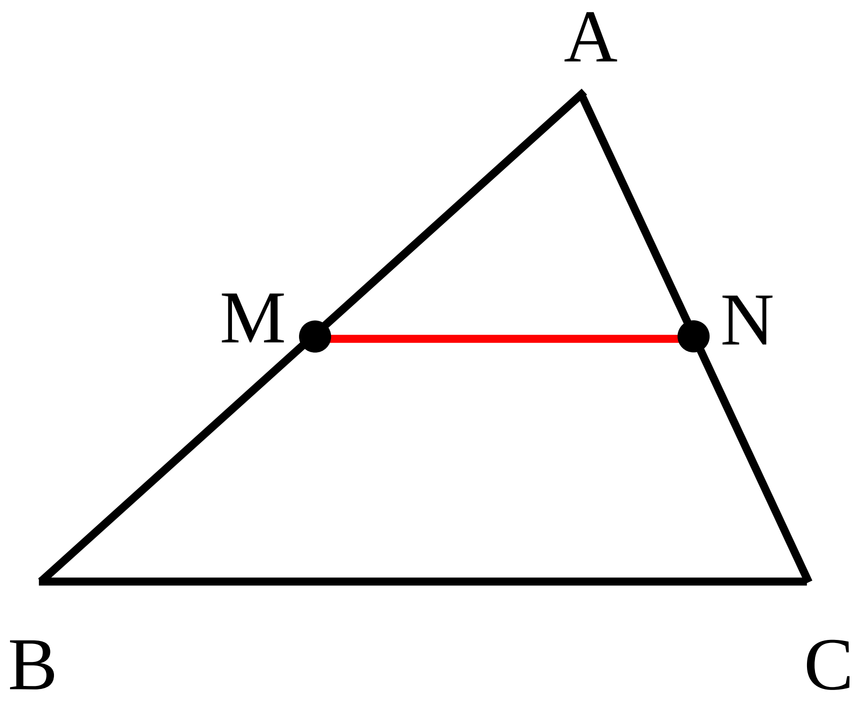
M * [AB]

N * [AC]

Result:

(MN) // (BC)

and $MN = \frac{BC}{2}$



Theorems

Converse of Midpoint theorem

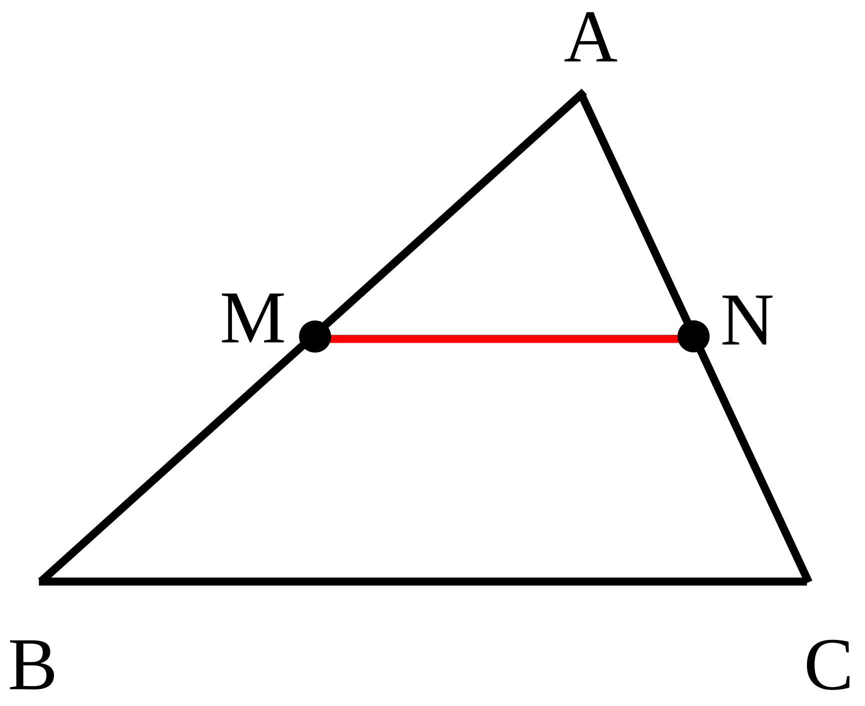
Condition:

M * [AB]

(MN) // (BC)

Result:

N * [AC]



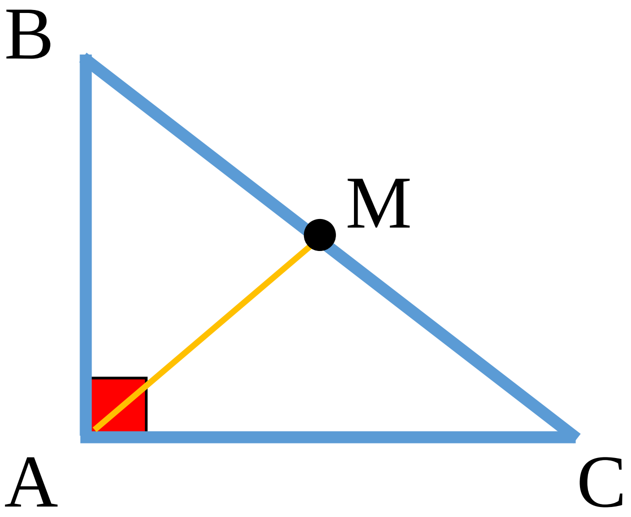
Theorems

Median theorem

Condition:

ABC is a right triangle at A

[AM] is the median relative to the hypotenuse [BC]



Result:

$$AM = \frac{BC}{2}$$

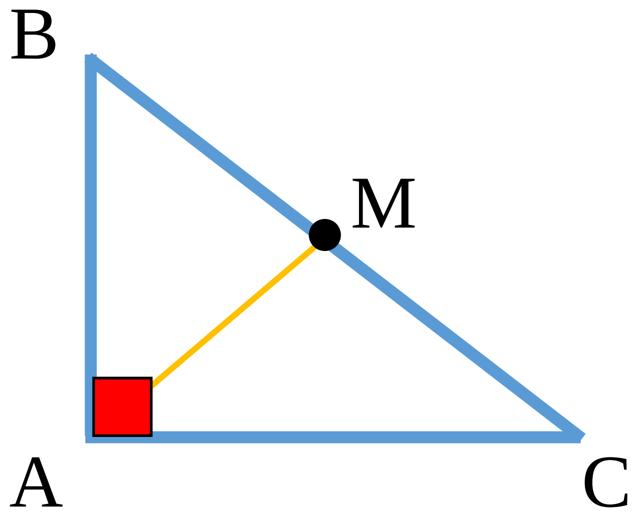
Theorems

Converse of Median theorem

Condition:

[AM] is the median relative to [BC]

$$AM = \frac{BC}{2}$$



Result:

ABC is a right triangle at A