Assignment No.1

Valli Devi Bolla MD 704

Download all python codes from

https://github.com/Vallidevibolla/bolla1.git

and latex-tikz codes from

https://github.com/Vallidevibolla/bolla1.git

1 Question No.13

In Fig. $\triangle ABD$ *is a right triangle, right – angled at* A *and* ACBD. *Prove that* $AB^2 = BC.BD$.

2 Solution

In $\triangle ABD$, $AB^2 + AD^2 = BD^2$ – – – –(1)
In $\triangle ABC$, $AC^2 + BC^2 = AB^2$ – – – –(2)
In $\triangle ACD$, $AC^2 + CD^2 = AD^2$ – – – –(3)
Subtracting (3) from (2) $AB^2 - AD^2 = BC^2 - CD^2$- – – – –(4)
Adding 1 and 4 $2AB^2 = BC^2 + BD^2 - CD^2$
$2AB^2 = (BC + CD)^2 + BC^2 - CD^2$
Since BD=BC+CD $2AB^2 = 2BC^2 + 2BC.CD$
$2AB^2 = (BC + CD)2BC$
$AB^2 = BC.BD$
Hence it is proved that $AB^2 = BC.BD$
□

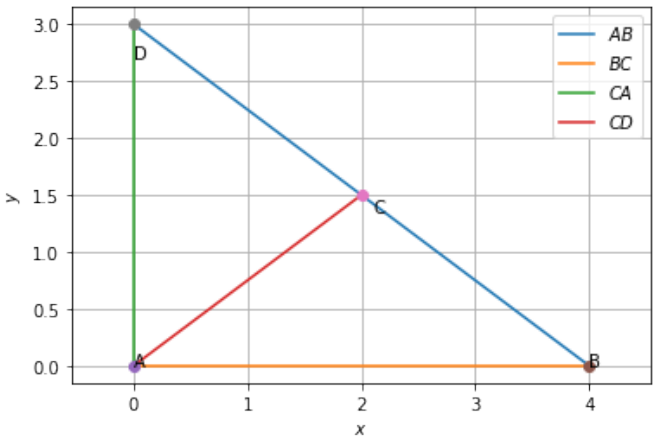

Fig. 0: Right angled triangle

3 2.Question 9

In Fig. $\triangle ABC$ *is circumscribing a circle. Find the length of* BC.

4 Solution

Given BR=3*cm* AR=4*cm* AC=11*cm*
BP=BR
AQ=AR
CP=CQ
(Because length of tangents to circle from external point will be equal)
Therefore AQ=44*cm* BP=3*cm*
As AC=11*cm*
QC+AQ=11*cm* QC=11-AQ
QC=7*cm* PC=7*cm*
BC=BP+PC
BC=3+7 BC=10*cm*
The length of BCis 10*cm*
□

image.png

Fig. 0: Image