Assignment5

Shubham Shrivastava

January 20, 2021

Question 1:

Let ABC be a right triangle in which $a = 8, c = 6$ and $B = 90$. BD is the perpendicular from B on AC (altitude). The circle through B, C, D (circumcircle of $4BCD$) is drawn. Construct the tangents from A to this circle.

Solution:

Given,
$BC = 8cm$, $AB = 6cm$ and $B = 90$
Steps of constructions
1. First of all, construct a triangle ABC.

2. Then, project an altitude to hypotenuse AC which meets it at D.

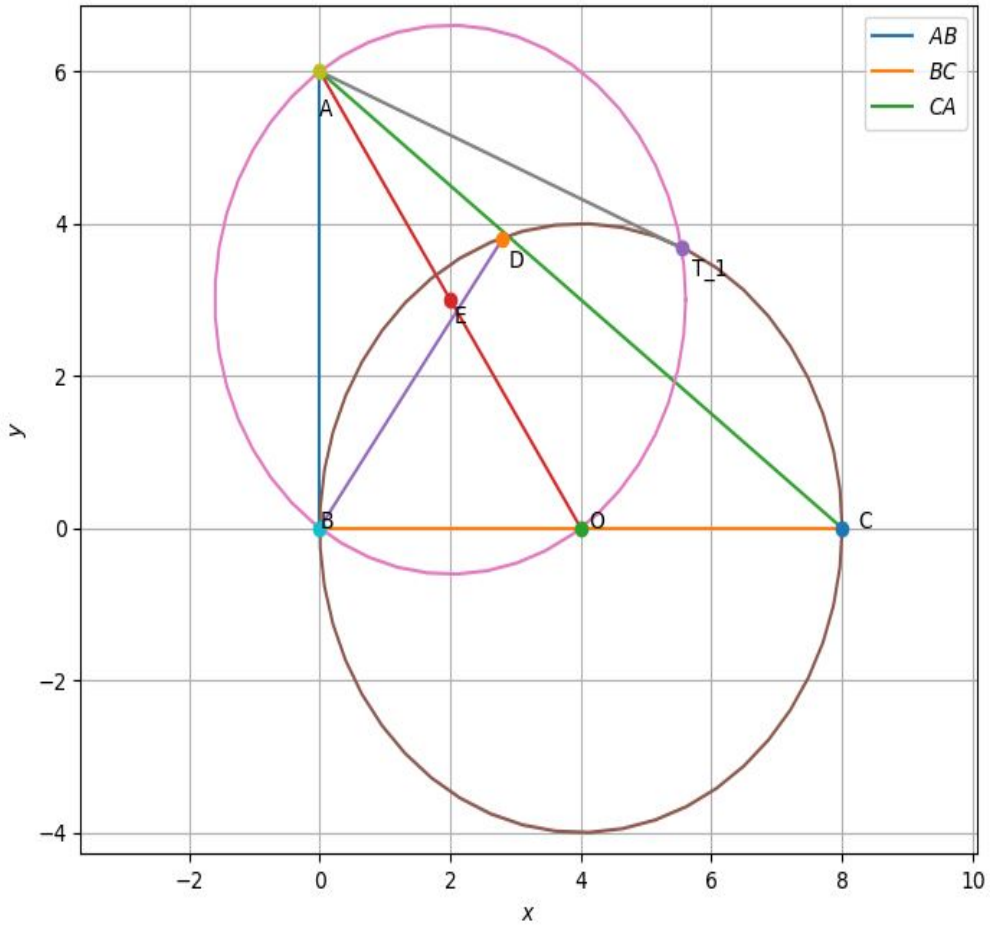
3. Take midpoint of BC as O, taking O as center and OB as radius, make a circle which passes through $AandC$ and intersects triangle at D.

4.Join A and O and bisect it at E.

5. Taking E as center and EO as radius, make another circle which passes through B, A and intersects first circle at G.

6.Now, Join AG, this is the required tangent.

Justification : If we join OG, it would make a right angled triangle because any angle in semi circle is right angle. As OG is radius and is perpendicular to AG. AG has to be tangent.



s

Figure 1: Figure generated by python

Question 2:

Draw a circle with centre C and radius 3.4. Draw any chord. Construct the perpendicular bisector of the chord and examine if it passes through C.

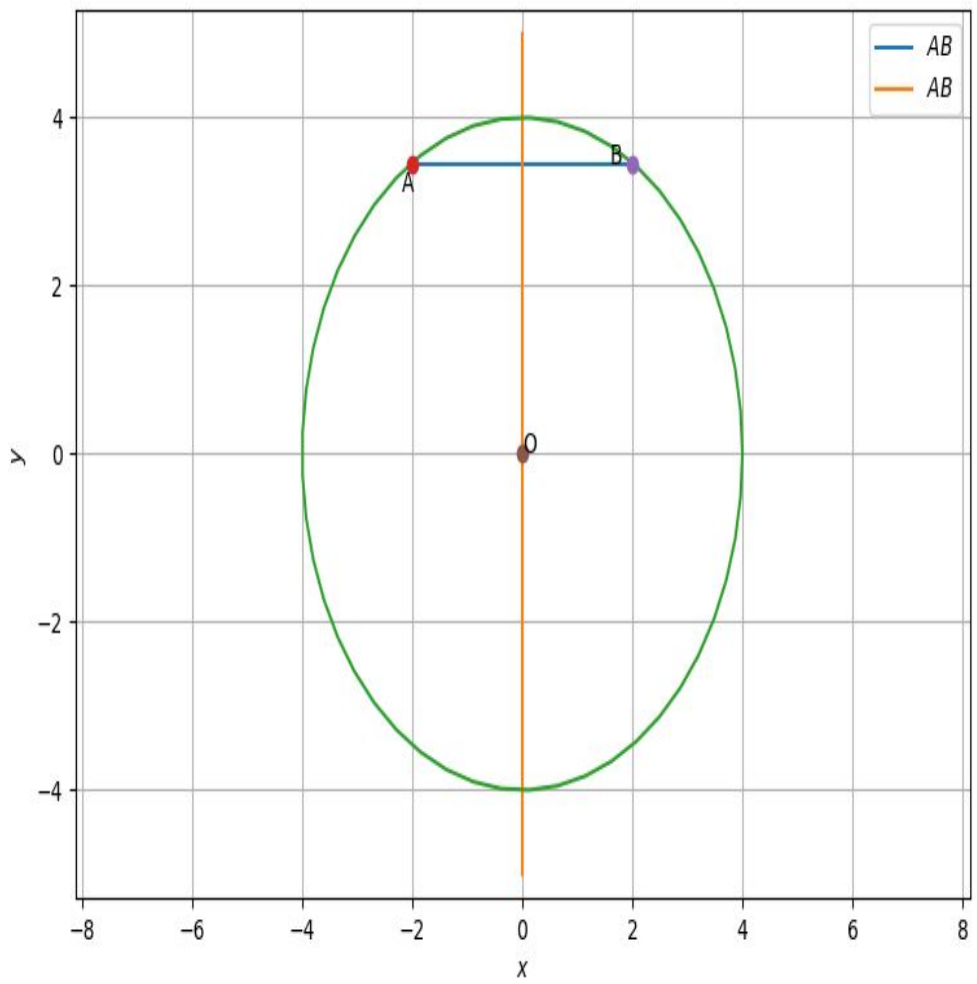
Solution

Steps of constructions
1. First of all, construct a circle with centre (0,0).

2. Then, construct a chord AB(we can take any two points, so here we are taking A and B).

3. Bisect the chord and make a line perpendicular to it.

4.Here we can see that perpendicular to AB passes through centre O.



s

Figure 2: Figure generated by python