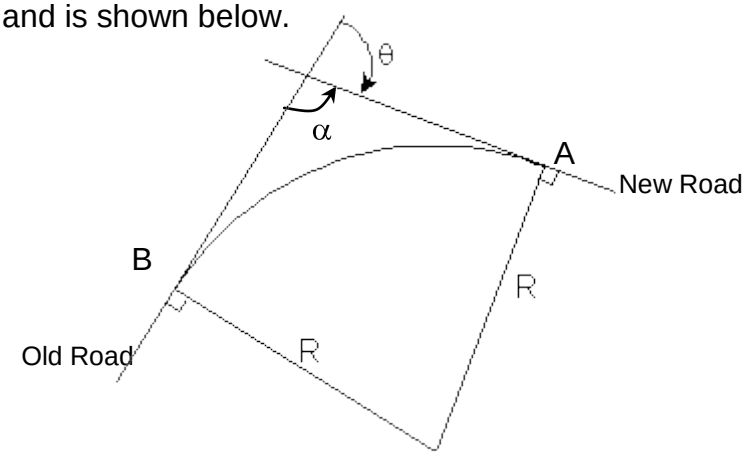
# MATHEMATICS
## Level One

# "Geometry"

**Setting:** In the design of roads and railways straight sections of road or tracks are connected by curves of constant radius. The purpose of the curve is to change direction. Using this idea, a new highway is to be constructed around the city to reduce the high amounts of traffic congestion during peak hours. The new road eventually needs to connect into an existing road. This is done using a circular curve and is shown below.

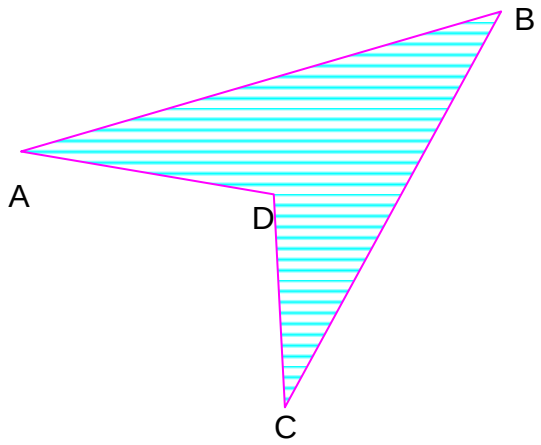



1) What is the curved line from AB called?

2) What is the straight line from AB called?

3) Solve for the missing angles.

a. If $\alpha = 68°$, $\theta =$
b. If $\alpha = 75°$, $\theta =$
c. If $\alpha = 58°$, $\theta =$
d. If $\theta = 110°$, $\alpha =$
e. If $\theta = 104°$, $\alpha =$




4) If the figure to the left has interior angles:
DAB =51° 16' 00"
ABC =36° 22' 00"
CDA =221° 38' 00" and the bearing from C to D = 351° 50' 00"
Calculate:

a) The bearings of the lines from D to A, A to B, and B to C.

b) The interior angle at B. Give a reason for your answer.