

# CIRCLE

1. In figure 1, the quadrilateral  $PQRS$  circumscribes a circle. Here  $PA + CS$  is equal to : (see table 1)

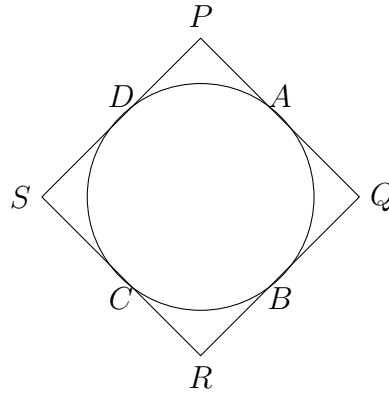


Figure 1

- |         |         |
|---------|---------|
| a) $QR$ | b) $PR$ |
| c) $PS$ | d) $PQ$ |

Table 1

2. In figure 2,  $\vec{O}$  is the center of the circle.  $AB$  and  $AC$  are tangents drawn to the circle from point  $\vec{A}$ . If  $\angle BAC = 65^\circ$ , then find the measure of  $\angle BOC$ .

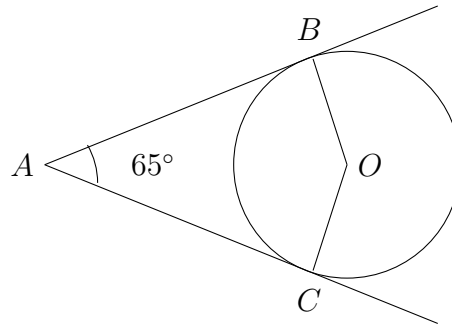


Figure 2

3. In figure 3,  $\vec{O}$  is the centre of the circle and  $QPR$  is a tangent to it at  $\vec{P}$ .  
Prove that  $\angle QAP + \angle APR = 90^\circ$ .

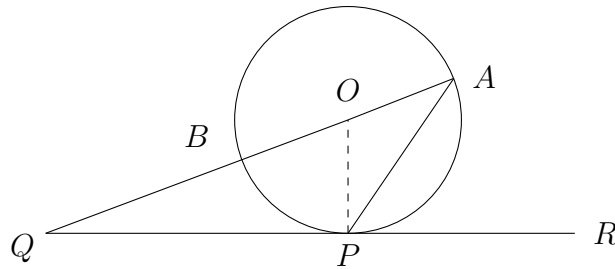


Figure 3

4. In figure 4,  $PQ$  is tangent to the circle centred at  $\vec{O}$ . If  $\angle AOB = 95^\circ$ ,  
then the measure of  $\angle ABQ$  will be (see table 2)

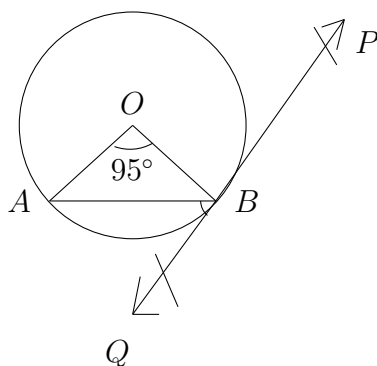


Figure 4

A)  $47.5^\circ$

B)  $42.5^\circ$

C)  $85^\circ$

D)  $95^\circ$

Table 2

5. (a) Two tangents  $TP$  and  $TQ$  are drawn between to a circle with centre  $O$  from an external point  $T$  (figure 5). Prove that  $\angle PTQ = 2\angle OPQ$ .

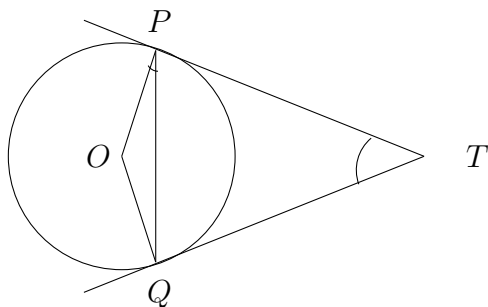


Figure 5

- (b) In figure 6, a circle is inscribed in a quadrilateral  $ABCD$  in which  $\angle B = 90^\circ$ . If  $AD = 17\text{cm}$ ,  $AB = 20\text{cm}$  and  $DS = 3\text{cm}$ , then find the radius of the circle.

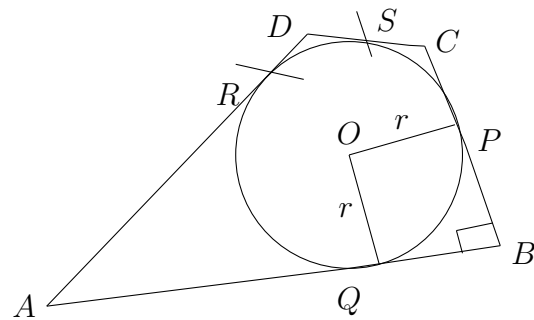


Figure 6

6. The discus throw is an event in which an athlete attempts to throw a discus (as shown in figure 7). The athlete spins anti-clockwise around one and a half times through a circle, then releases the throw. When released, the discus travels along tangent to the circular spin orbit.

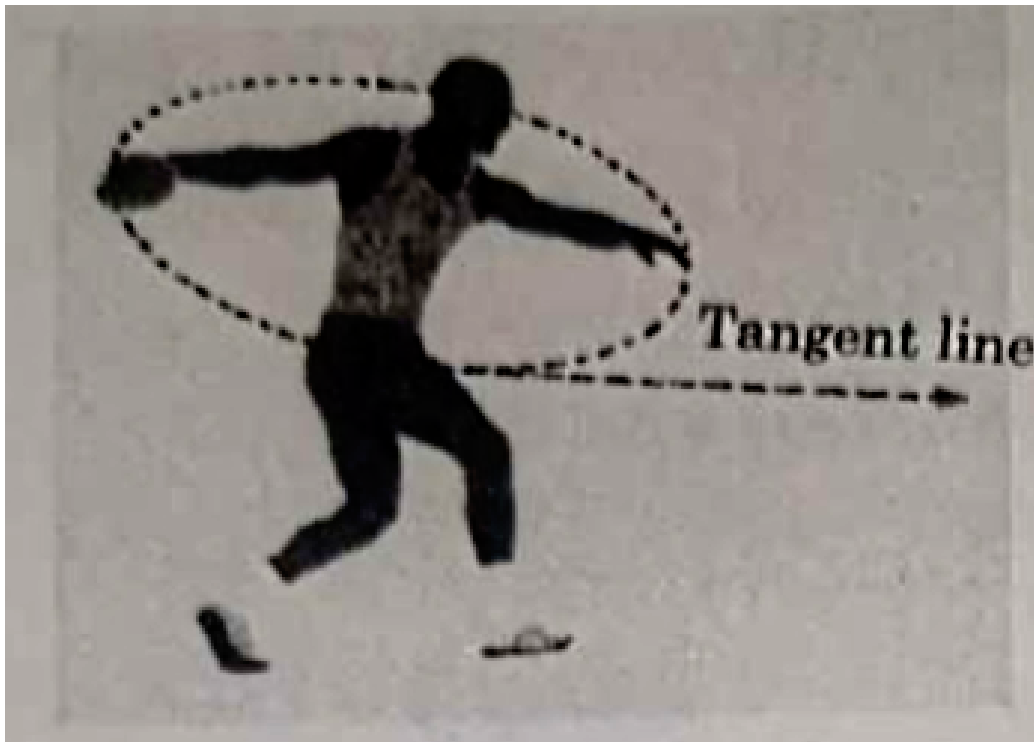


Figure 7

In figure 8,  $AB$  is one such tangent to a circle of radius  $75\text{ cm}$ . Point  $O$  is centre of the circle and  $\angle ABO = 30^\circ$ .  $PQ$  is parallel to  $OA$ .

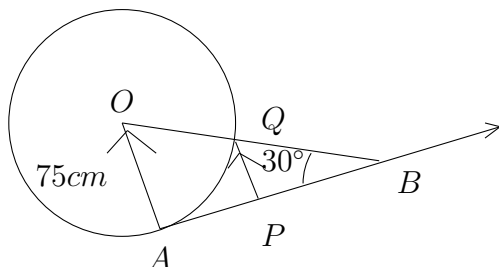


Figure 8

Based on above information:

- (a) find the length of  $AB$ .
- (b) find the length of  $OB$ .
- (c) find the length of  $AP$ .

find the length of  $PQ$ .

7. In figure 9,  $TA$  is a tangent to the circle with centre  $O$  such that  $OT = 4\text{ cm}$ ,  $\angle OTA = 30^\circ$ , then length of  $TA$  is:

- (a)  $2\sqrt{3}\text{ cm}$
- (b)  $2\text{ cm}$
- (c)  $2\sqrt{2}\text{ cm}$
- (d)  $\sqrt{3}\text{ cm}$

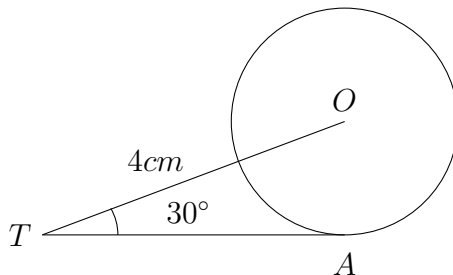


Figure 9

8. In figure 10,  $PT$  is a tangent at  $T$  to the circle with centre  $O$ . If  $\angle TPO = 25^\circ$ , then  $x$  is equal to:

- (a)  $25^\circ$
- (b)  $65^\circ$
- (c)  $90^\circ$
- (d)  $115^\circ$

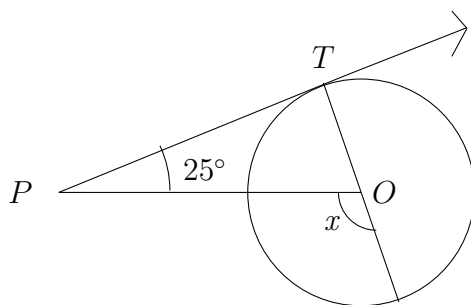


Figure 10

9. Two concentric circles are of radii 5 cm and 3 cm. Find the length of the cord of the larger circle which touches the smaller circle.