Circle Properties
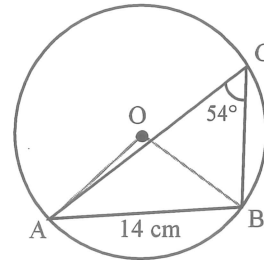## Examination Style Questions
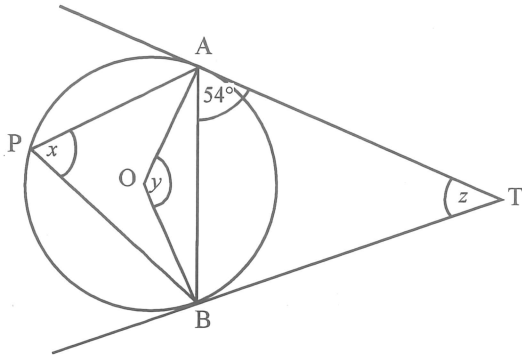
Diagrams not to scale.

1). The points A, B and C lie on a circle, centre O.

∠ACB = 54°,
AB = 14 cm.
Calculate the radius of the circle.

2).

AT and BT are tangents to the circle, centre O.
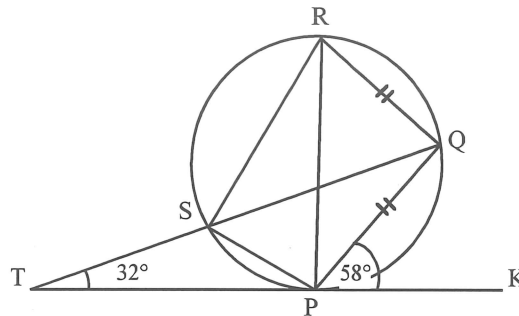P is a point on the circumference as shown.
∠BAT = 54°.
Calculate the size of
a). x,
b). y,
c). z.

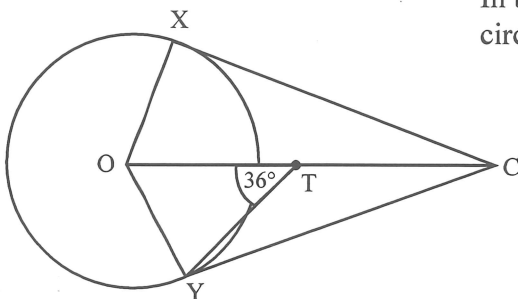3). TPK is a tangent to the circle.
TSQ is a straight line.
PQ = QR.
∠QPK = 58° and ∠STP = 32°.
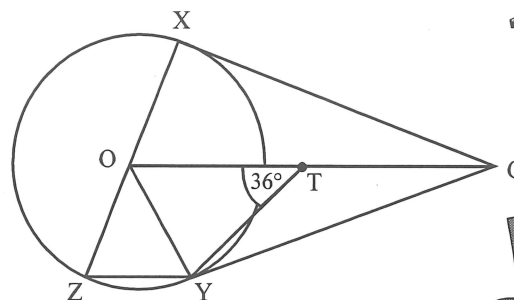Calculate the size of
a).   ∠PQR,
b).   ∠QRS.

4).

In the first diagram XC and YC are tangents to a
circle, centre O. The mid-point of OC is T.
a).   Give geometrical reasons why
    i).   ∠CYO = 90°,
    ii).   ∠XCO = ∠YCO,
    iii). YT = TC.

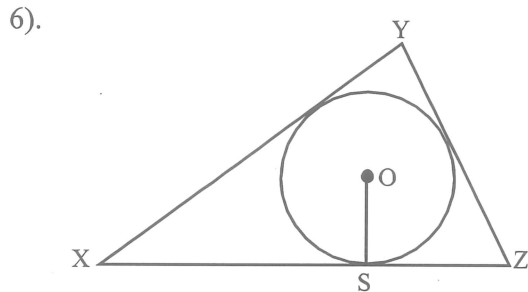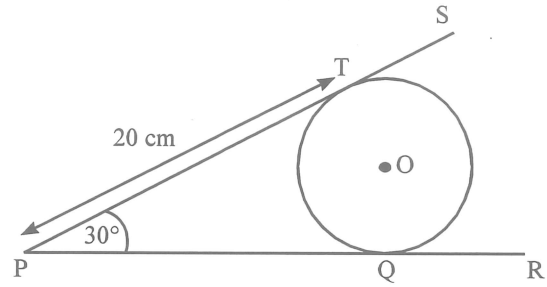b).   ∠YTO = 36°.
      Calculate the size of ∠YCO.

c).   In the second diagram,
      XO has been produced to meet
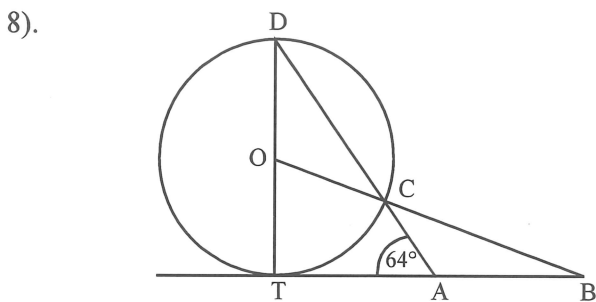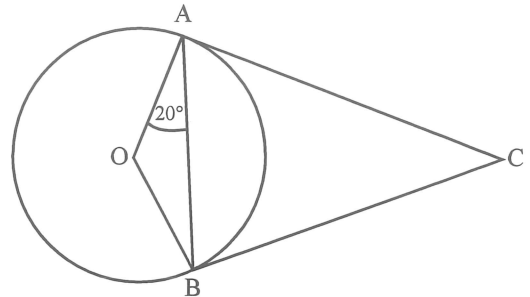   the circle at Z.
      Calculate the size of ∠OZY.

5). The diagram shows a tennis ball, centre O, resting on a flat surface PQR.
A ruler, PTS, rests on the ball at T.
PT = 20 cm and ∠TPQ = 30°.
Calculate the radius of the tennis ball correct to the nearest millimetre.

6).

A dog is tethered by a rope attached to a post at O in a triangular field XYZ, as shown in the diagram.
It can just reach each of the three boundary fences.
S is the point at which it can reach fence XZ.
a). Write down the size of ∠OSZ, giving a reason for your answer.
b). XY = 20 m, XZ = 22 m, YZ = 18 m and the area of the field is 169.7 m². Calculate the length of rope.

7). The diagram shows a circle, centre O.
AC and BC are tangents to the circle at A and B.
∠OAB = 20°.
Calculate, showing your working,
a). ∠AOB,
b). ∠ABC,
c). ∠ACB.

8).

O is the centre of the circle.
TB is a tangent touching the circle at T.
∠DAT = 64°.
a). Calculate ∠OBT.
b). If AT = 9.2 cm, calculate
   i). the radius of the circle,
   ii). DA,
   iii). AB.

9). In the diagram, AB and AC are tangents to the circle touching at B and C.
The centre of the circle is at O.
a). Find the size of ∠BAC.
b). If AB = 24 cm, find
   i). the radius of the circle,
   ii). the distance OA.

10).
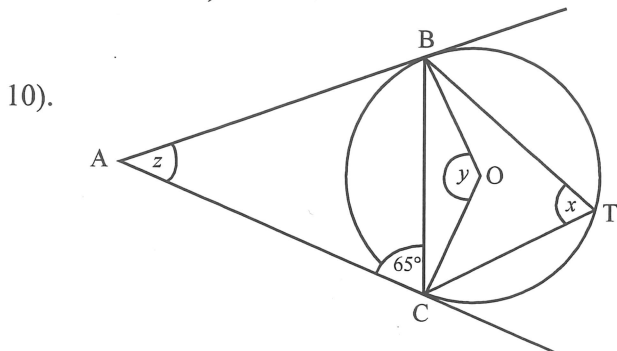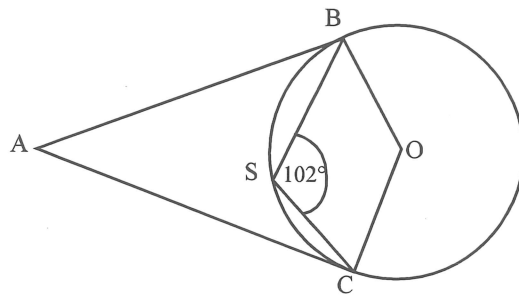
AB and AC are tangents to the circle, centre O.
T is a point on the circumference as shown.
∠BCA = 65°.
Calculate the size of
a). x,
b). y,
c). z.

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