Questions

Q1.

*

R
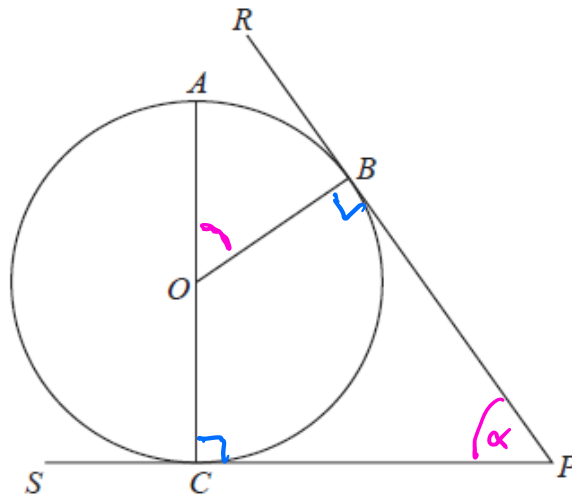
Diagram **NOT** accurately drawn

Let $\angle CPB = \alpha$

$\angle PCO = \angle PBO = 90°$
(tangent - radius)

A, *B* and *C* are points on a circle, centre *O*.

RBP is the tangent to the circle at *B*.
SCP is the tangent to the circle at *C*.
AOC is a diameter of the circle.

Prove that angle *AOB* is equal to angle *CPB*.
You must give reasons at each stage.

$\therefore \angle COB = 360 - 90 - 90 - \alpha$

$= 180 - \alpha$

$(\angle \text{ sum of quad})$

$\angle AOB = 180 - \angle COB$

(Total for question = 5 marks)

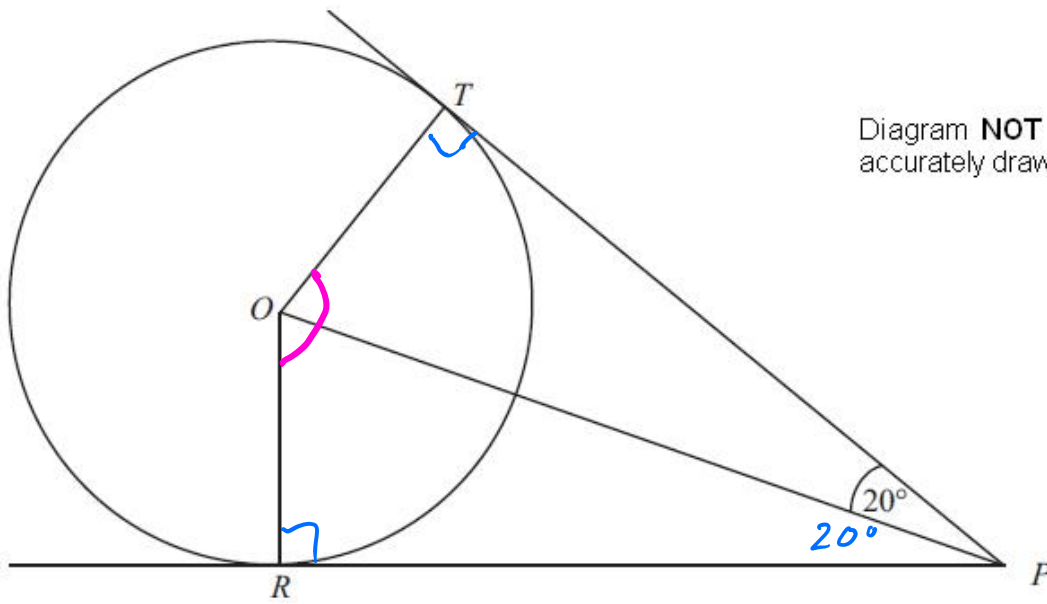(Angles on straight line)

$180 - (180 - \alpha) = \alpha$

Q2.

*

$\therefore \angle AOB = \angle CPB$

Diagram **NOT** accurately drawn

T and *R* are two points on a circle centre *O*.

PT and *PR* are the tangents to the circle from *P*.

Angle *TPO* = 20°.

Work out the size of angle *TOR*.
You must give reasons for each stage of your working.

$\angle PRO = \angle PTO = 90°$ (tangent radius)

$\angle RPO = 20°$ (symmetry or congruent $\triangle$s)

$\angle TOR = 360 - 90 - 90 - 40$
$(\angle$ sum of quad)

$\angle TOR = 140°$

(Total for Question is 4 marks)

Q3.

*
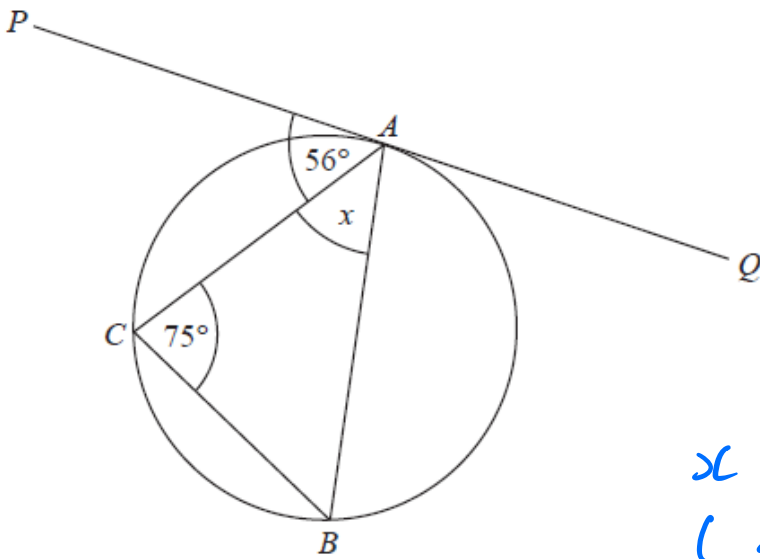
Diagram **NOT**
accurately drawn

$\angle ABC = 56^{\circ}$
(alt seg theorem)

$x = 180^{\circ} - 75^{\circ} - 56^{\circ}$
$(\angle \text{ sum of } \triangle)$

$x = 49^{\circ}$

A, B and C are points on the circumference of a circle.
The straight line *PAQ* is a tangent to the circle.
Angle *PAC* = 56°
Angle *ACB* = 75°

Work out the size of the angle marked *x*.
Give reasons for each stage of your working.
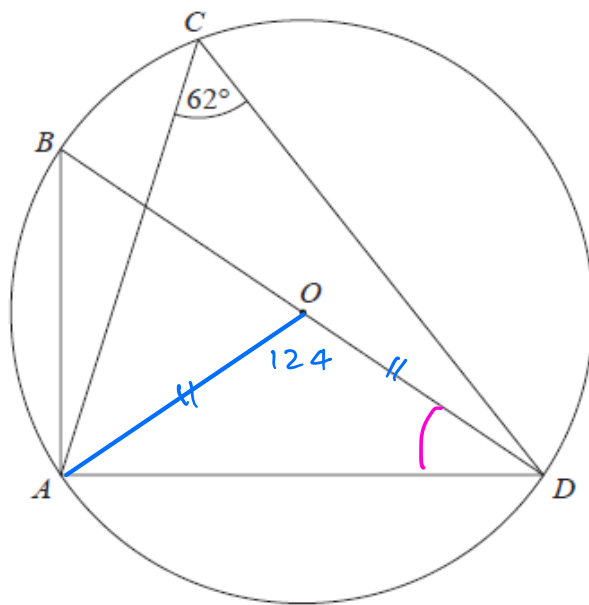
(Total for question = 3 marks)

Q4.

*

Diagram **NOT**
accurately drawn

$\angle AOB = 124^{\circ}$
$(\angle \text{ at centre}$
$\text{twice } \angle \text{ at circ})$

$\angle ADB = \dfrac{180 - 124}{2}$
$(\text{base } \angle s \text{ of isos } \triangle)$

$\angle ADB = 28^{\circ}$

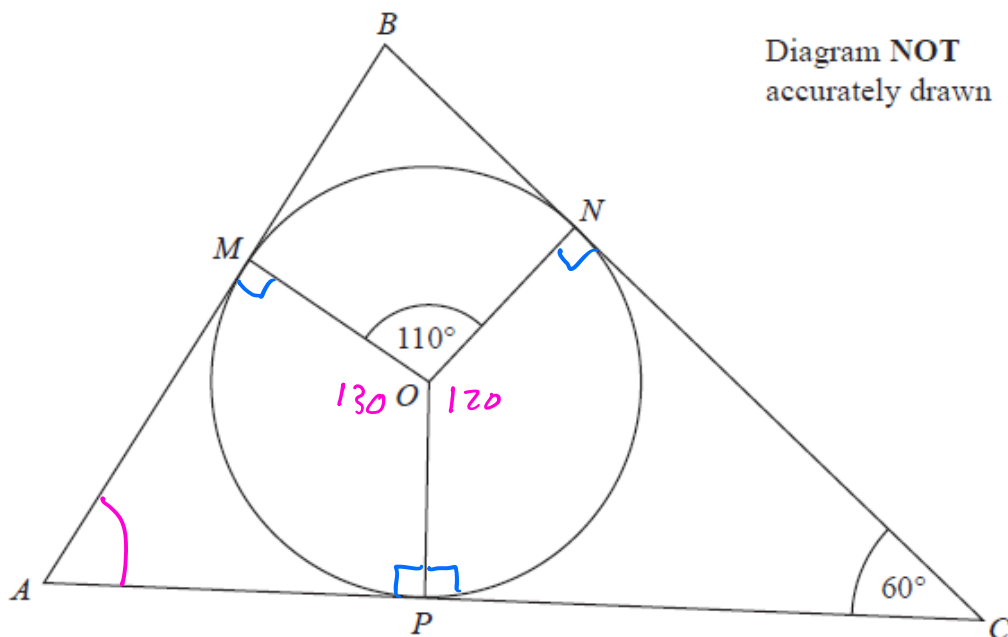A, B, C and D are points on the circumference of a circle, centre O.
BOD is a straight line.
Angle *ACD* = 62°

Find the size of angle *ADB*.
Give a reason for each stage in your working.

(Total for question = 4 marks)

Q5.

*

B

Diagram **NOT**
accurately drawn

M

N

110°

130 O 120

A

P

60°

C

M, *N* and *P* are points on the circumference of a circle, centre *O*.
AMB, *BNC*, and *CPA* are tangents to the circle.

Angle *MON* = 110°
Angle *BCA* = 60°

$\angle CPO = \angle CNO = \angle APO = \angle AMO = 90°$
(tangent - radius)

Work out the size of angle *BAC*.
Give reasons for each stage of your working.

$\angle PON = 360 - 90 - 90 - 60 = 120°$ (∠ sum of quad)

(Total for question = 4 marks)

$\angle MOP = 360 - 110 - 120 = 130°$ (∠s at a point)

$\angle BAC = 360 - 90 - 90 - 130 = 50°$ (∠ sum of quad)

$\angle BAC = 50°$