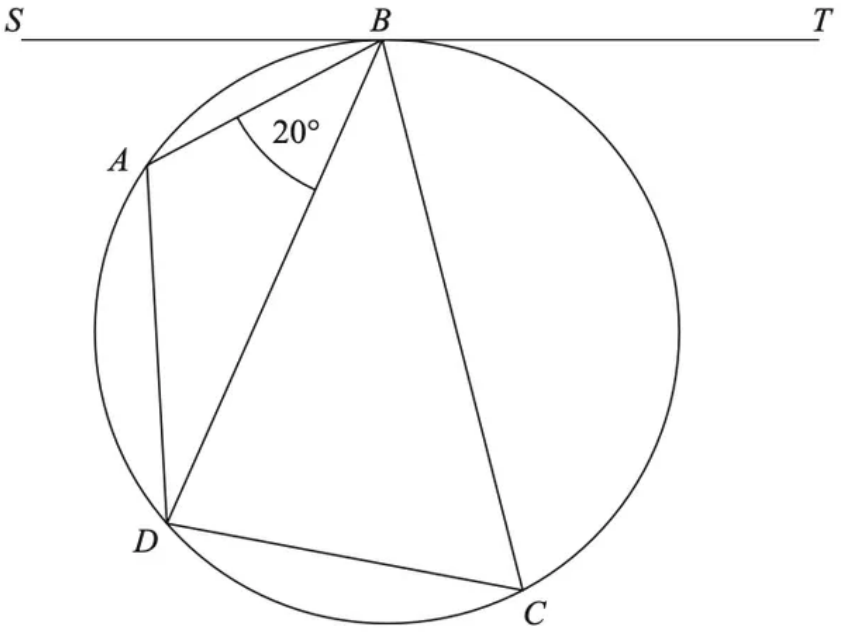
# Name: _____

| GCSE (1 - 9)<br><br>Circle Theorems | Solutions: |
|---|---|

These questions are compiled from *released* Pearson Edexcel GCSE maths exam papers
They contain exam questions from up until the ***Autumn 2021*** exam series
More recent exam papers do exist but are withheld for mock exams
As new exam papers are released these worksheets will gradually be updated
The ***most current*** version of these worksheets will always be available at: kennethstafford.co.uk
These worksheets were made using examq.co.uk

| Question | Paper where the question appeared |
|---|---|
| 1 | Edexcel, GCSE, Autumn 2021, Paper 2H, Q14 |
| 2 | Edexcel, GCSE, Autumn 2020, Paper 3H, Q14 |
| 3 | Edexcel, GCSE, Autumn 2019, Paper 1H, Q22 |
| 4 | Edexcel, GCSE, Autumn 2019, Paper 2H, Q17 |
| 5 | Edexcel, GCSE, Summer 2019, Paper 2H, Q18 |
| 6 | Edexcel, GCSE, Autumn 2018, Paper 1H, Q12 |
| 7 | Edexcel, GCSE, Autumn 2018, Paper 2H, Q21 |
| 8 | Edexcel, GCSE, Summer 2018, Paper 1H, Q11 |
| 9 | Edexcel, GCSE, Summer 2018, Paper 2H, Q13 |
| 10 | Edexcel, GCSE, Autumn 2017, Paper 3H, Q20 |
| 11 | Edexcel, GCSE, Summer 2017, Paper 2H, Q15 |
| 12 | Edexcel, GCSE, Summer 2017, Paper 3H, Q18 |
| | |
| | |

**1**




$A$, $B$, $C$ and $D$ are four points on a circle.
$SBT$ is a tangent to the circle.
Angle $ABD = 20°$

the size of angle $BAD$ : the size of angle $BCD = 3 : 1$

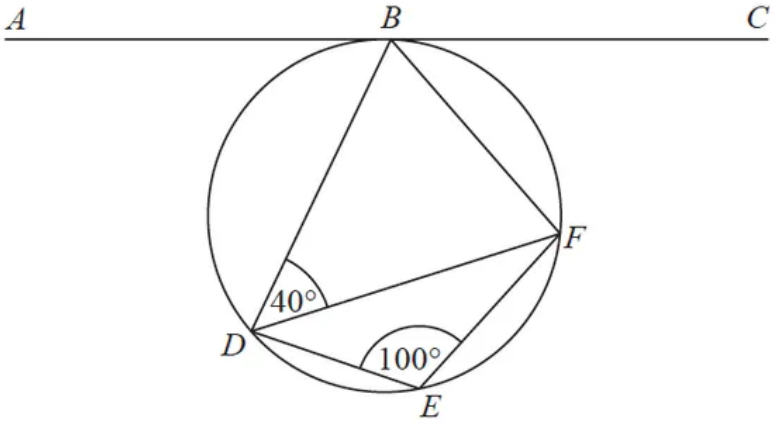
Find the size of angle $SBA$.
Give a reason for each stage of your working.

.....°

**(Total for Question 14 is 4 marks)**

*[Edexcel, GCSE, Autumn 2021, Paper 2H, Q14]*

**2**




Points $B$, $D$, $E$ and $F$ lie on a circle.
$ABC$ is the tangent to the circle at $B$.

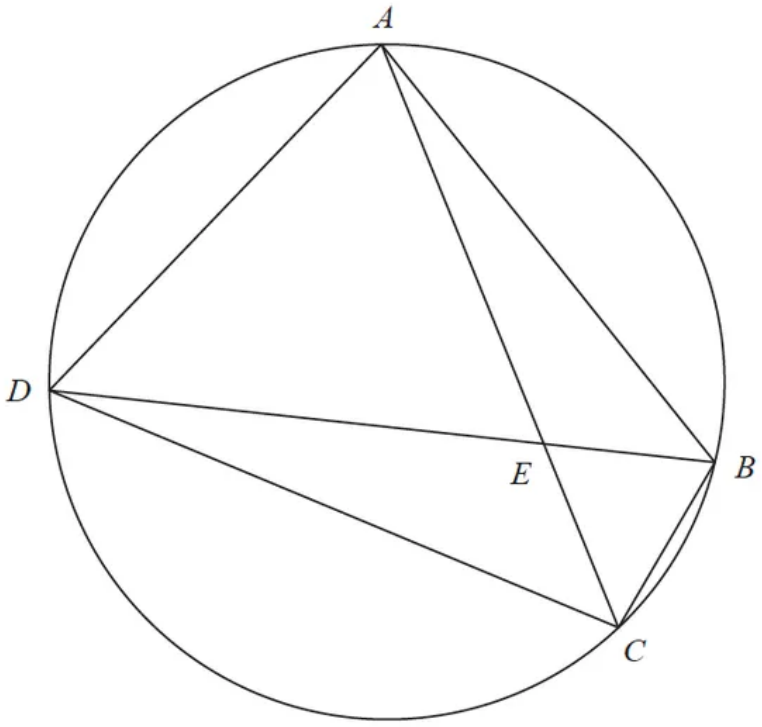
Find the size of angle $ABD$.
You must give a reason for each stage of your working.

**(Total for Question 14 is 4 marks)**

*[Edexcel, GCSE, Autumn 2020, Paper 3H, Q14]*

**3**

$A$, $B$, $C$ and $D$ are four points on a circle.




$AEC$ and $DEB$ are straight lines.

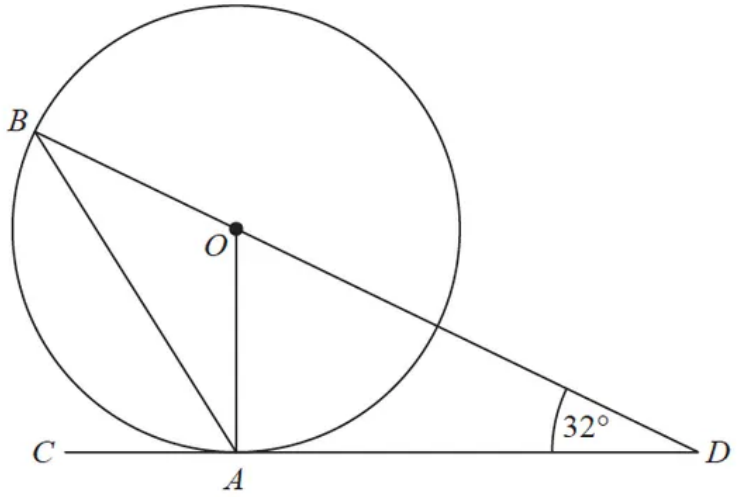
Triangle $AED$ is an equilateral triangle.

Prove that triangle $ABC$ is congruent to triangle $DCB$.

**(Total for Question 22 is 4 marks)**

*[Edexcel, GCSE, Autumn 2019, Paper 1H, Q22]*

**4**




*A* and *B* are points on a circle with centre *O*.
*CAD* is the tangent to the circle at *A*.
*BOD* is a straight line.

Angle *ODA* = 32°

Work out the size of angle *CAB*.
You must show all your working.

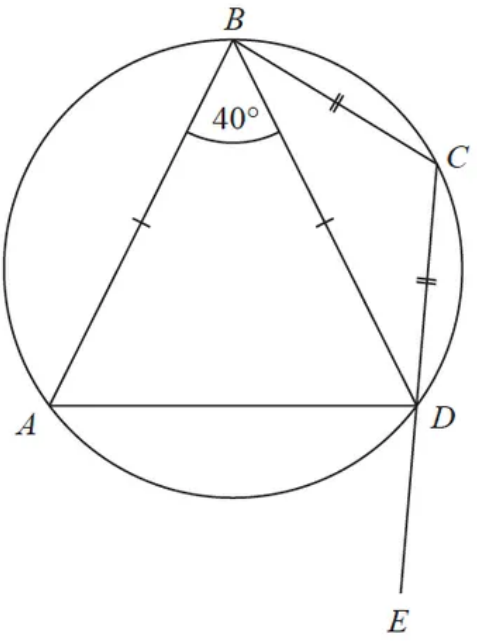
.....°

**(Total for Question 17 is 3 marks)**

*[Edexcel, GCSE, Autumn 2019, Paper 2H, Q17]*

**5**

The points $A$, $B$, $C$ and $D$ lie on a circle.
$CDE$ is a straight line.



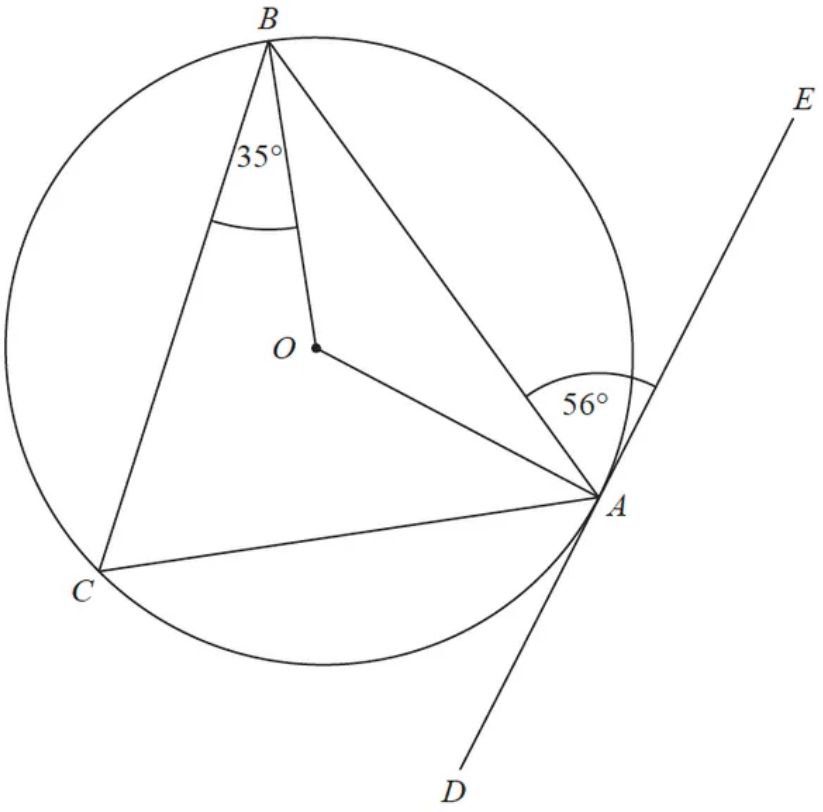

$BA = BD$
$CB = CD$
Angle $ABD = 40°$

Work out the size of angle $ADE$.
You must give a reason for each stage of your working.

**(Total for Question 18 is 5 marks)**

*[Edexcel, GCSE, Summer 2019, Paper 2H, Q18]*

**6**




$A$, $B$ and $C$ are points on the circumference of a circle, centre $O$.
$DAE$ is the tangent to the circle at $A$.

Angle $BAE = 56°$
Angle $CBO = 35°$

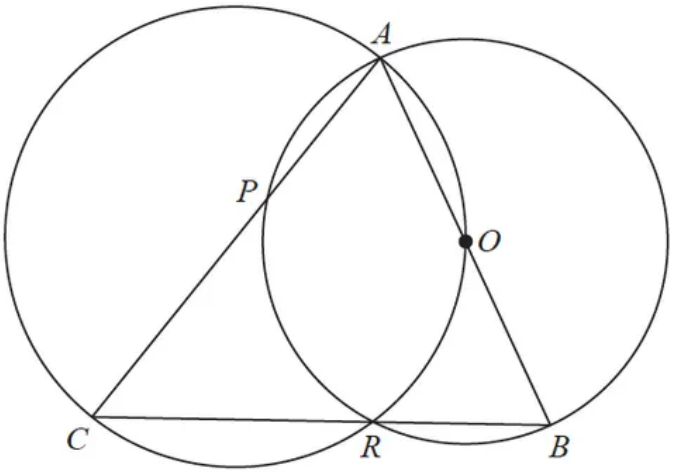
Work out the size of angle $CAO$.
You must show all your working.

.....°

**(Total for Question 12 is 3 marks)**

*[Edexcel, GCSE, Autumn 2018, Paper 1H, Q12]*

**7**




$A$, $B$, $R$ and $P$ are four points on a circle with centre $O$.
$A$, $O$, $R$ and $C$ are four points on a different circle.
The two circles intersect at the points $A$ and $R$.

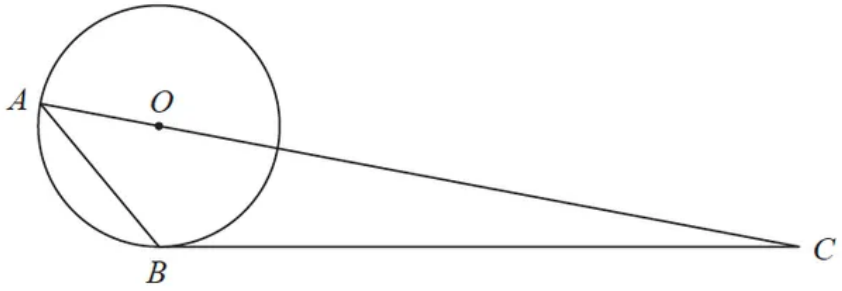
$CPA$, $CRB$ and $AOB$ are straight lines.

Prove that angle $CAB$ = angle $ABC$.

**(Total for Question 21 is 4 marks)**

*[Edexcel, GCSE, Autumn 2018, Paper 2H, Q21]*

**8**




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

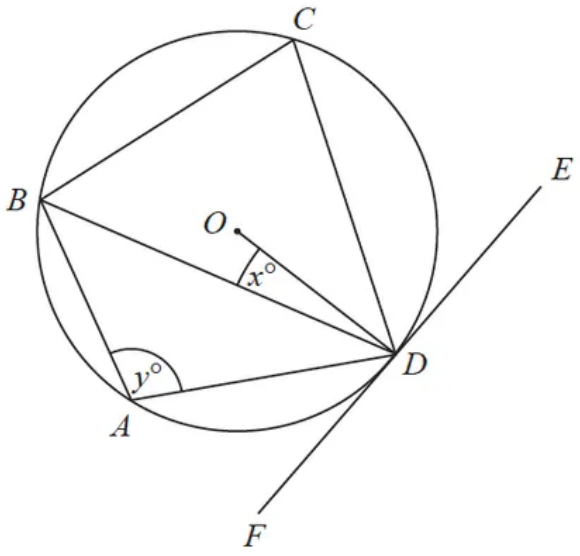
$BC$ is a tangent to the circle.
$AOC$ is a straight line.
Angle $ABO = x°$.

Find the size of angle $ACB$, in terms of $x$.
Give your answer in its simplest form.
Give reasons for each stage of your working.

**(Total for Question 11 is 5 marks)**

*[Edexcel, GCSE, Summer 2018, Paper 1H, Q11]*

**9**




$A$, $B$, $C$ and $D$ are points on the circumference of a circle, centre $O$.
$FDE$ is a tangent to the circle.

(a) Show that $y - x = 90$
You must give a reason for each stage of your working.

**(3)**

Dylan was asked to give some possible values for $x$ and $y$.

He said,

"$y$ could be 200 and $x$ could be 110, because $200 - 110 = 90$"

(b) Is Dylan correct?
You must give a reason for your answer.

.....

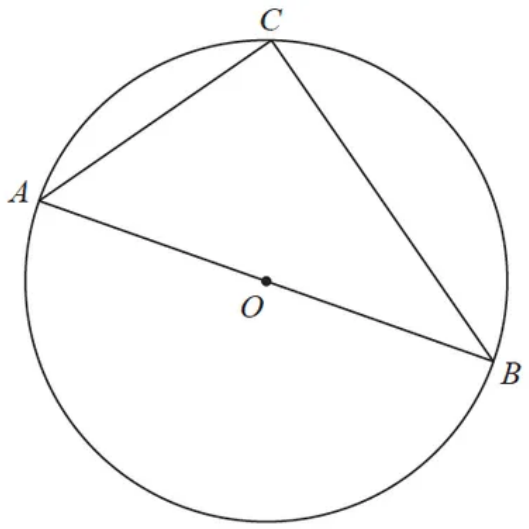
.....

**(1)**

**(Total for Question 13 is 4 marks)**

*[Edexcel, GCSE, Summer 2018, Paper 2H, Q13]*

**10**




$A$, $B$ and $C$ are points on the circumference of a circle, centre $O$.
$AOB$ is a diameter of the circle.

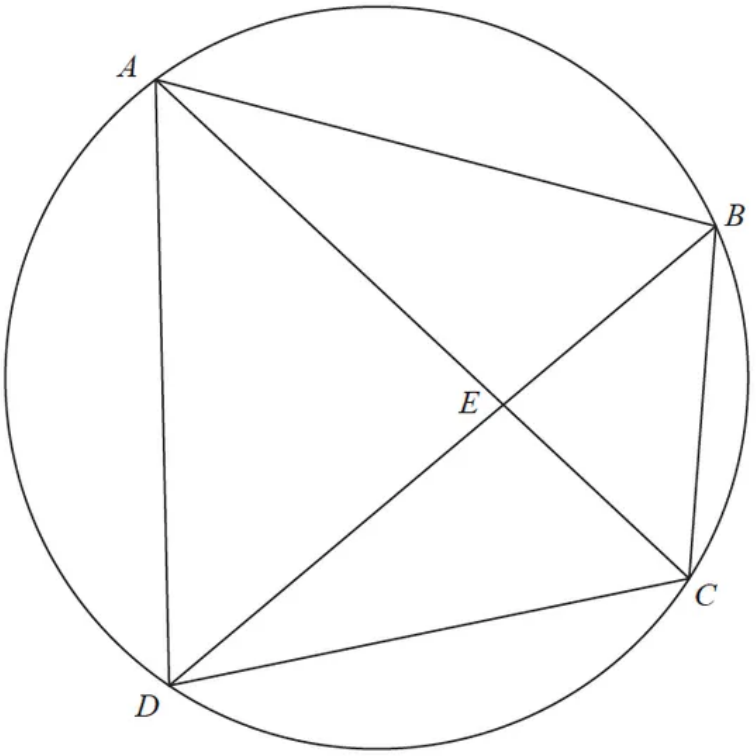
Prove that angle $ACB$ is 90°
You must **not** use any circle theorems in your proof.

**(Total for Question 20 is 4 marks)**

*[Edexcel, GCSE, Autumn 2017, Paper 3H, Q20]*

**11**

$A$, $B$, $C$ and $D$ are four points on the circumference of a circle.



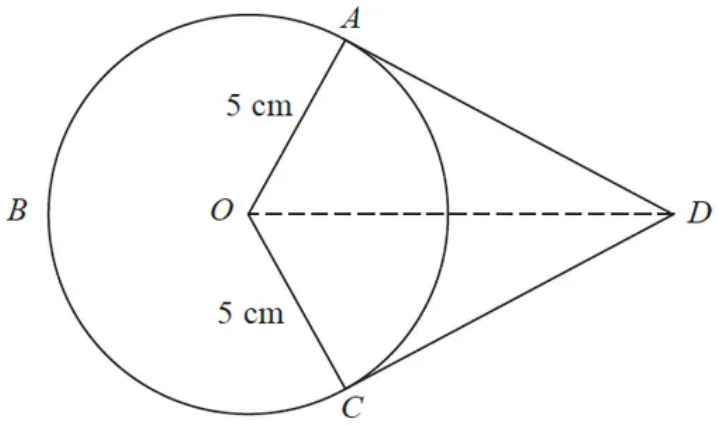

$AEC$ and $BED$ are straight lines.

Prove that triangle $ABE$ and triangle $DCE$ are similar.
You must give reasons for each stage of your working.

**(Total for Question 15 is 3 marks)**

*[Edexcel, GCSE, Summer 2017, Paper 2H, Q15]*

**12**




$A$, $B$ and $C$ are points on a circle of radius 5 cm, centre $O$.
$DA$ and $DC$ are tangents to the circle.
$DO = 9$ cm

Work out the length of arc $ABC$.
Give your answer correct to 3 significant figures.

..... cm

**(Total for Question 18 is 5 marks)**

*[Edexcel, GCSE, Summer 2017, Paper 3H, Q18]*