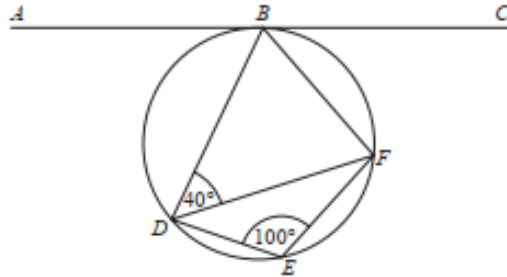


**ANGELS**

Pearson Edexcel – Monday 8 June 2020 - Paper 3 (Calculator) Higher Tier

1.

14



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.

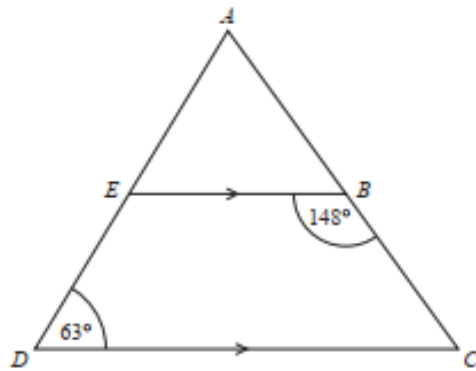
---

(Total for Question 14 is 4 marks)

Pearson Edexcel - Tuesday 19 May 2020 - Paper 1 (Non-Calculator) Higher Tier

2.

6  $ADC$  is a triangle.



$AED$  and  $ABC$  are straight lines.  
 $EB$  is parallel to  $DC$ .

Angle  $EBC = 148^\circ$   
Angle  $ADC = 63^\circ$

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

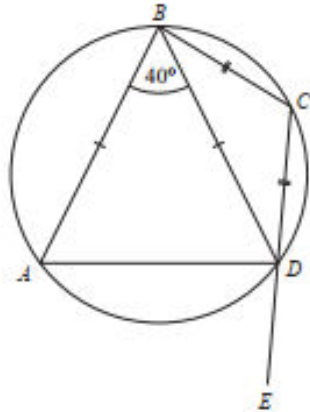
---

(Total for Question 6 is 5 marks)

Pearson Edexcel - Thursday 6 June 2019 - Paper 2 (Calculator) Higher Tier

3.

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

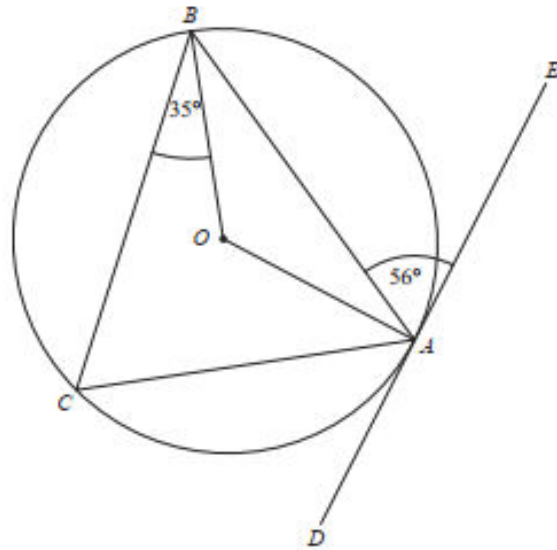


$BA = BD$   
 $CB = CD$   
Angle  $ABD = 40^\circ$

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)



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

Angle  $BAE = 56^\circ$

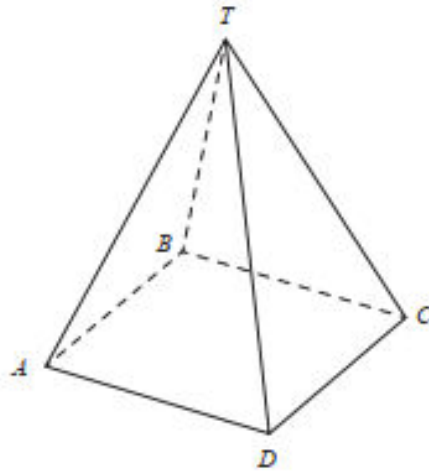
Angle  $CBO = 35^\circ$

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

---

(Total for Question 12 is 3 marks)

12 Here is a pyramid with a square base  $ABCD$ .



$AB = 5$  m

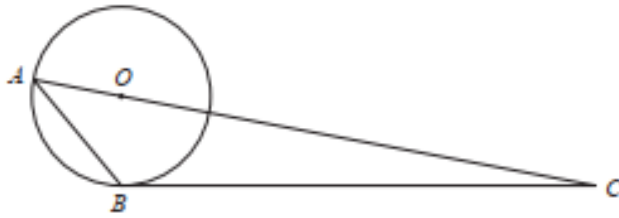
The vertex  $T$  is 12 m vertically above the midpoint of  $AC$ .

Calculate the size of angle  $TAC$ .

---

(Total for Question 12 is 4 marks)

11



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

$BC$  is a tangent to the circle.

$AOC$  is a straight line.

Angle  $ABO = x^\circ$ .

Find the size of angle  $ACB$ , in terms of  $x$ .

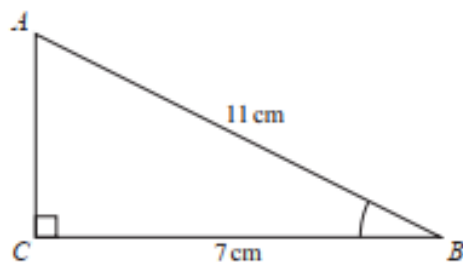
Give your answer in its simplest form.

Give reasons for each stage of your working.

---

(Total for Question 11 is 5 marks)

5  $\triangle ABC$  is a right-angled triangle.



- (a) Work out the size of angle  $ABC$ .  
Give your answer correct to 1 decimal place.

---

(2)

The length of the side  $AB$  is reduced by  $1\text{ cm}$ .

The length of the side  $BC$  is still  $7\text{ cm}$ .

Angle  $ACB$  is still  $90^\circ$

- (b) Will the value of  $\cos ABC$  increase or decrease?  
You must give a reason for your answer.

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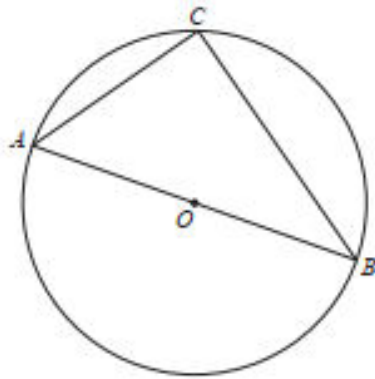
---

(1)

---

(Total for Question 5 is 3 marks)

---



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

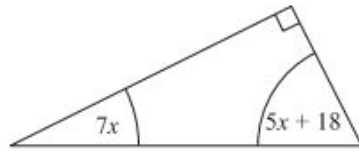
Prove that angle  $ACB$  is  $90^\circ$   
You must **not** use any circle theorems in your proof.

---

(Total for Question 20 is 4 marks)



1 The diagram shows a right-angled triangle.



All the angles are in degrees.

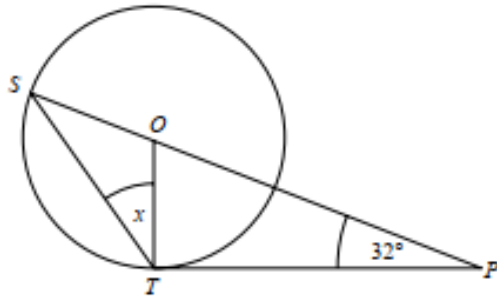
Work out the size of the smallest angle of the triangle.

.....<sup>o</sup>

---

(Total for Question 1 is 3 marks)

11



$S$  and  $T$  are points on the circumference of a circle, centre  $O$ .

$PT$  is a tangent to the circle.

$SOP$  is a straight line.

Angle  $OPT = 32^\circ$

Work out the size of the angle marked  $x$ .

You must give a reason for each stage of your working.

---

(Total for Question 11 is 4 marks)

Pearson Edexcel - Thursday 26 May 2016 - Paper 1 (Non-Calculator) Higher Tier

11.

\*20

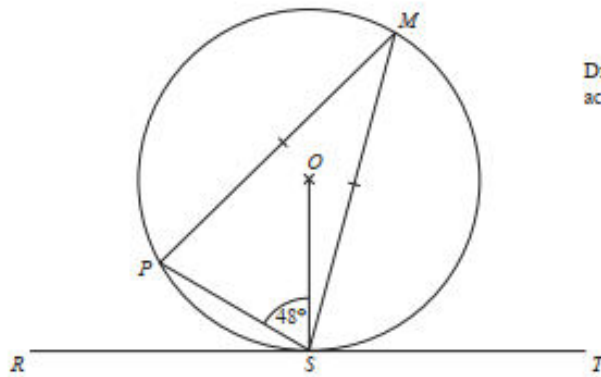


Diagram NOT  
accurately drawn

$P$ ,  $M$  and  $S$  are points on a circle, centre  $O$ .  
 $RST$  is a tangent to the circle.

Angle  $PSO = 48^\circ$   
 $MP = MS$

Work out the size of angle  $MST$ .  
Give reasons for each stage of your working.

---

(Total for Question 20 is 5 marks)

17

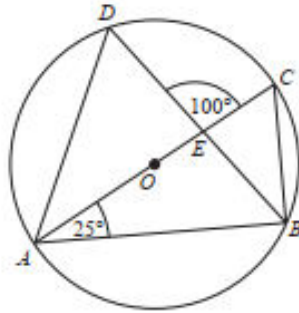


Diagram NOT  
accurately drawn

$A$ ,  $B$ ,  $C$  and  $D$  are points on the circumference of a circle, centre  $O$ .  
 $AC$  is a diameter of the circle.  
 $AC$  and  $BD$  intersect at  $E$ .

Angle  $CAB = 25^\circ$   
Angle  $DEC = 100^\circ$

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

---

(Total for Question 17 is 4 marks)

Pearson Edexcel - Monday 9 June 2014 - Paper 1 (Non-Calculator) Higher Tier

13.

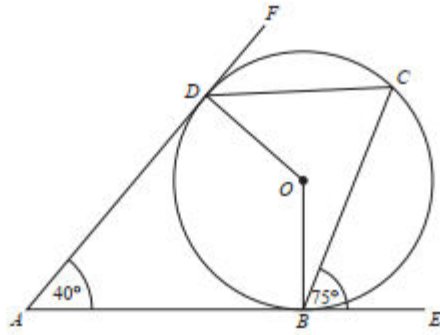


Diagram NOT  
accurately drawn

$B$ ,  $C$  and  $D$  are points on the circumference of a circle, centre  $O$ .  
 $ABE$  and  $ADF$  are tangents to the circle.

Angle  $DAB = 40^\circ$

Angle  $CBE = 75^\circ$

Work out the size of angle  $ODC$ .

(Total for Question 21 is 3 marks)

\*22

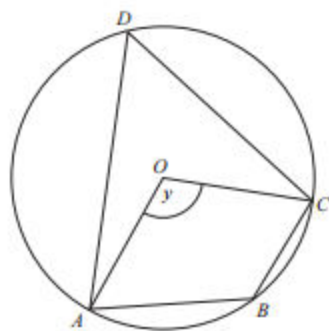


Diagram NOT  
accurately drawn

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

Angle  $AOC = y$ .

Find the size of angle  $ABC$  in terms of  $y$ .

Give a reason for each stage of your working.

---

(Total for Question 22 is 4 marks)

\*16

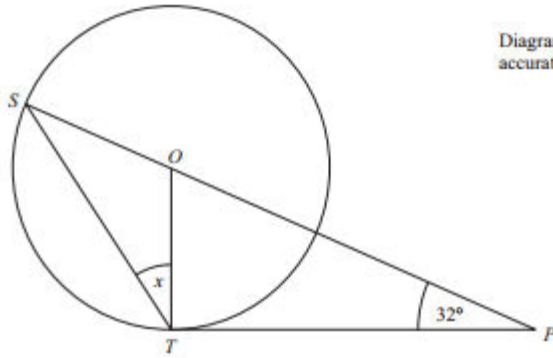


Diagram NOT  
accurately drawn

*S* and *T* are points on the circumference of a circle, centre *O*.  
*PT* is a tangent to the circle.  
*SOP* is a straight line.

Angle  $OPT = 32^\circ$

Work out the size of the angle marked *x*.  
Give reasons for your answer.

.....°  

---

**(Total for Question 16 is 5 marks)**

19

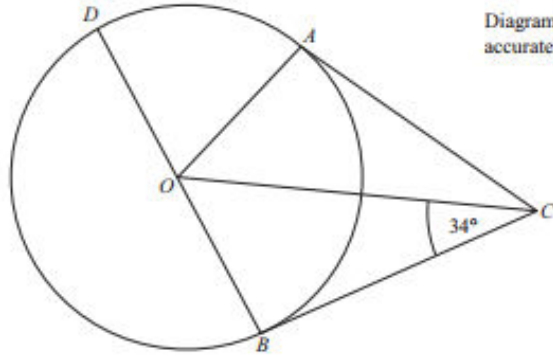


Diagram NOT  
accurately drawn

$A$ ,  $B$  and  $D$  are points on the circumference of a circle, centre  $O$ .  
 $BD$  is a diameter of the circle.  
 $BC$  and  $AC$  are tangents to the circle.  
Angle  $OCB = 34^\circ$ .

Work out the size of angle  $DOA$ .

.....  
°  

---

**(Total for Question 19 is 3 marks)**



21

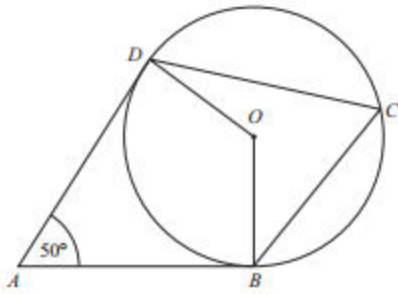


Diagram NOT  
accurately drawn

$B$ ,  $C$  and  $D$  are points on the circumference of a circle, centre  $O$ .  
 $AB$  and  $AD$  are tangents to the circle.

Angle  $DAB = 50^\circ$

Work out the size of angle  $BCD$ .

Give a reason for each stage in your working.

---

(Total for Question 21 is 4 marks)

19.

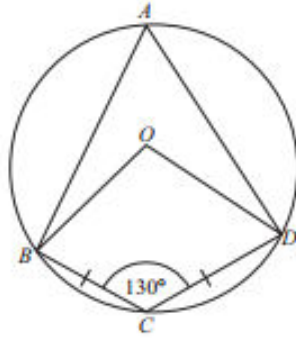


Diagram NOT  
accurately drawn

$A, B, C$  and  $D$  are points on a circle, centre  $O$ .  
 $BC = CD$ .  
Angle  $BCD = 130^\circ$ .

- (a) Write down the size of angle  $BAD$ .  
Give a reason for your answer.

.....  
(2)

- (b) Work out the size of angle  $ODC$ .  
Give reasons for your answer.

.....  
(4)

(Total 6 marks)

19.

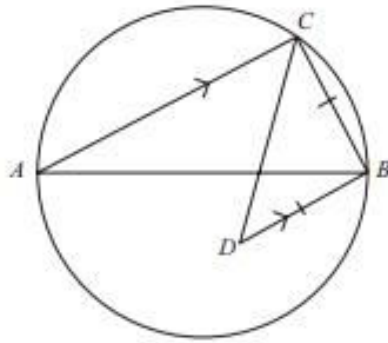


Diagram NOT  
accurately drawn

$AB$  is a diameter of a circle.

$C$  is a point on the circle.

$D$  is the point inside the circle such that  $BD = BC$  and  $BD$  is parallel to  $CA$ .

Find the size of angle  $CDB$ .

You must give reasons for your answer.

.....  
(Total 4 marks)

Pearson Edexcel - Monday 14 November 2011 - Paper 4 (Calculator) Higher Tier

20.

6.

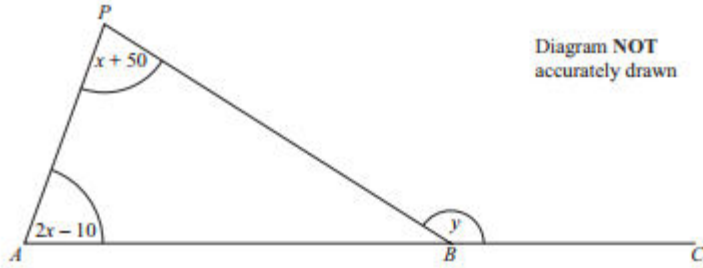


Diagram NOT accurately drawn

All angles are measured in degrees.

$ABC$  is a straight line.

Angle  $APB = x + 50$

Angle  $PAB = 2x - 10$

Angle  $PBC = y$

- (a) Show that  $y = 3x + 40$   
Give reasons for each stage of your working.

(3)

- (b) Given that  $y = 145$ ,

- (i) work out the value of  $x$ ,

$x = \dots\dots\dots$

- (ii) work out the size of the largest angle in triangle  $ABP$ .

$\dots\dots\dots^\circ$   
(4)

(Total 7 marks)

17. The diagram shows two similar triangles.

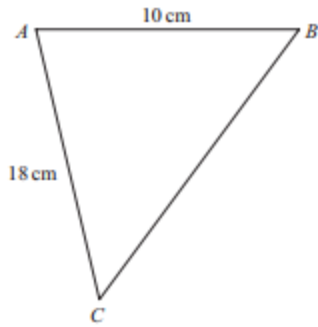
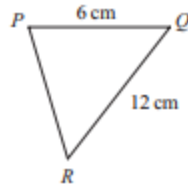


Diagram NOT accurately drawn



In triangle  $ABC$ ,  $AB = 10\text{ cm}$  and  $AC = 18\text{ cm}$ .  
In triangle  $PQR$ ,  $PQ = 6\text{ cm}$  and  $QR = 12\text{ cm}$ .

Angle  $ABC = \text{angle } PQR$ .  
Angle  $CAB = \text{angle } RPQ$ .

(a) Calculate the length of  $BC$ .

..... cm  
(2)

(b) Calculate the length of  $PR$ .

..... cm  
(2)

(Total 4 marks)

---

21.

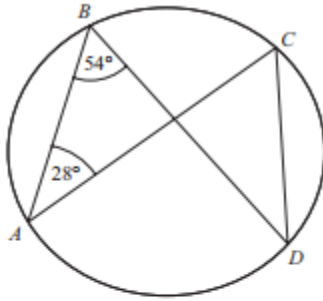


Diagram NOT accurately drawn

$A, B, C$  and  $D$  are points on the circumference of a circle.  
Angle  $ABD = 54^\circ$ .  
Angle  $BAC = 28^\circ$ .

(i) Find the size of angle  $ACD$ .

.....  
°

(ii) Give a reason for your answer.

.....  
.....

(Total 2 marks)

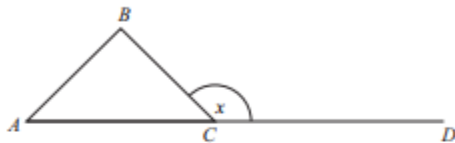
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Pearson Edexcel - Tuesday 9 November 2010 - Paper 3 (Non-Calculator) Higher Tier

23.

9.

Diagram NOT accurately drawn



$ABC$  is an equilateral triangle.  
 $ACD$  is a straight line.

(a) Work out the size of the angle marked  $x$ .

.....  
°  
(2)

(b) Give a reason for your answer.

.....  
.....  
(1)

(Total 3 marks)

---

24.

23.

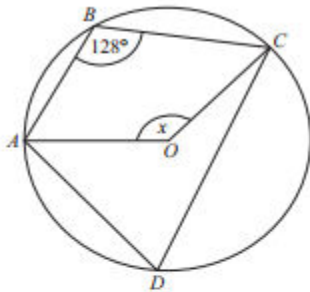


Diagram **NOT**  
accurately drawn

The diagram shows a circle, centre  $O$ .  
 $A$ ,  $B$ ,  $C$  and  $D$  are points on the circumference of the circle.

Angle  $ABC = 128^\circ$ .

Work out the size of the angle marked  $x$ .

.....  
(Total 2 marks)

---

25.

3.

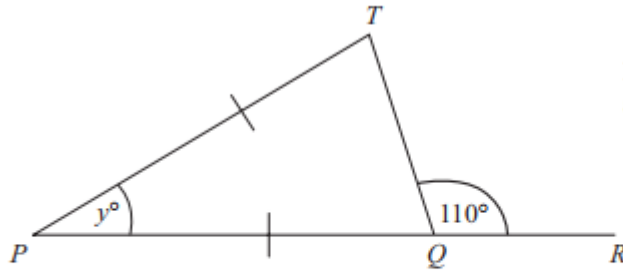


Diagram NOT  
accurately drawn

$PQR$  is a straight line.

$PT = PQ$ .

(i) Work out the value of  $y$ .

.....

(ii) Give reasons for your answer.

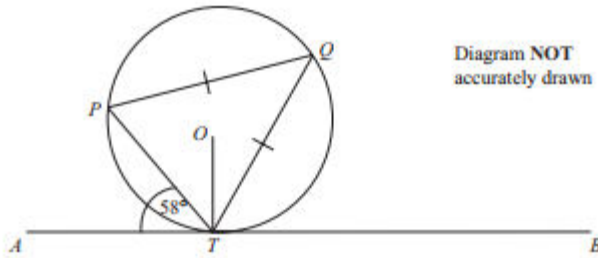
.....  
.....  
.....

**(Total 4 marks)**

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27.



$P$ ,  $Q$  and  $T$  are points on the circumference of a circle, centre  $O$ .  
The line  $ATB$  is the tangent at  $T$  to the circle.

$PQ = TQ$ .  
Angle  $ATP = 58^\circ$ .

Calculate the size of angle  $OTQ$ .  
Give a reason for each stage in your working.

.....  
**(Total 5 marks)**

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18.

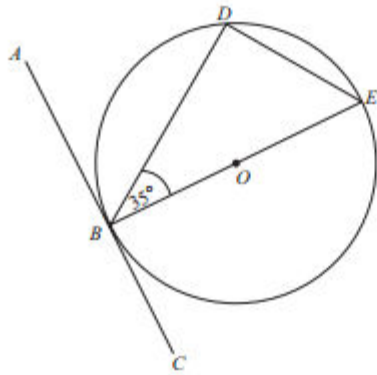


Diagram NOT  
accurately drawn

$B$ ,  $D$  and  $E$  are points on a circle centre  $O$ .  
 $ABC$  is a tangent to the circle.  
 $BE$  is a diameter of the circle.  
Angle  $DBE = 35^\circ$ .

- (a) Find the size of angle  $ABD$ .  
Give a reason for your answer.

.....  
(2)

- (b) Find the size of angle  $DEB$ .  
Give a reason for your answer.

.....  
(2)

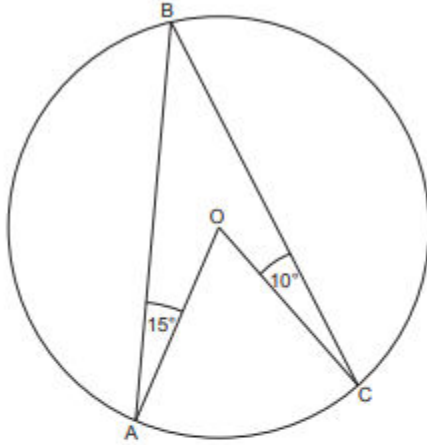
(Total 4 marks)

---

28.

16 (a) In the diagram,

- A, B and C are points on the circumference of a circle
- O is the centre of the circle
- angle OAB =  $15^\circ$
- angle BCO =  $10^\circ$ .



Not to scale

Calculate the acute angle AOC.

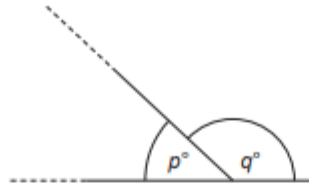
(a) .....° [4]



OCR GSCE – Thursday 6 June 2019 – Paper 5 (Non-Calculator) Higher Tier

29.

- 9 An interior angle of an isosceles triangle is  $p^\circ$  and an exterior angle is  $q^\circ$ .



Not to scale

It is given that  $q = 5p$ .

- (a) Write the ratio  $p : q$  in its simplest form.

(a) ..... : ..... [2]

- (b) Work out the two different possible sets of angles for the isosceles triangle.

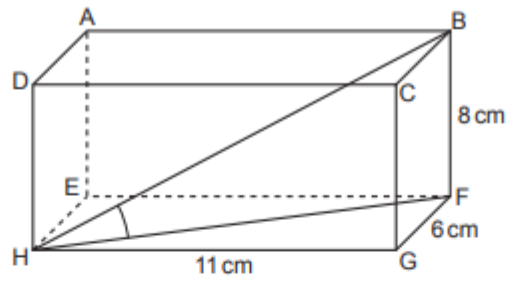
(b) Triangle 1: ..... $^\circ$ , ..... $^\circ$ , ..... $^\circ$

Triangle 2: ..... $^\circ$ , ..... $^\circ$ , ..... $^\circ$

[4]

30.

14 The diagram shows a cuboid ABCDEFGH.

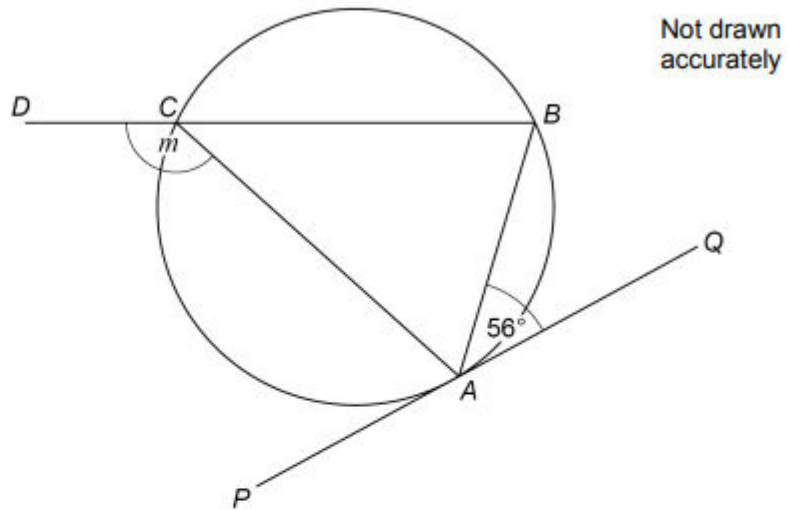


Calculate angle BHF.

.....° [5]

31.

- 22 *A, B and C are points on a circle.*  
*DCB is a straight line.*  
*PAQ is a tangent to the circle.*



Sam is trying to work out the size of angle  $m$ .  
Here is his working.

$\text{angle } ACB = 56^\circ$	angles in the same segment are equal
$m = 180^\circ - 56^\circ$	angles at a point on a straight line add up to $180^\circ$
$m = 124^\circ$	

Make a criticism of his working.

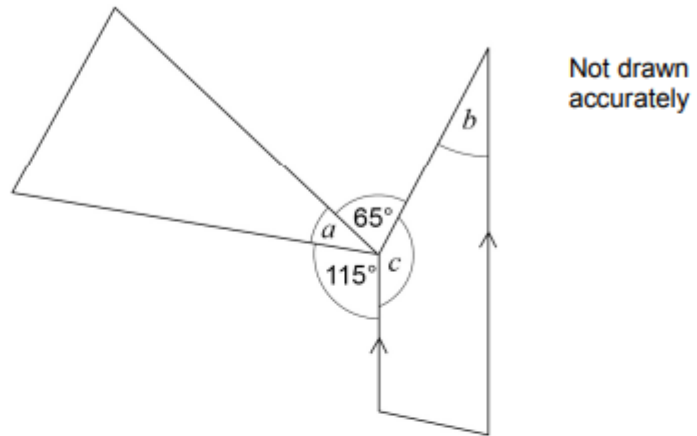
[1 mark]

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32.

19 The diagram shows a triangle and a trapezium.



Prove that  $a = b$

[3 marks]

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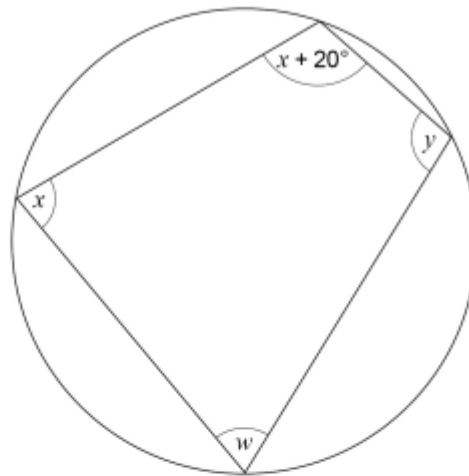
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33.

24 Here is a cyclic quadrilateral.



Not drawn accurately

$$x : y = 5 : 7$$

Work out the size of angle  $w$ .

[4 marks]

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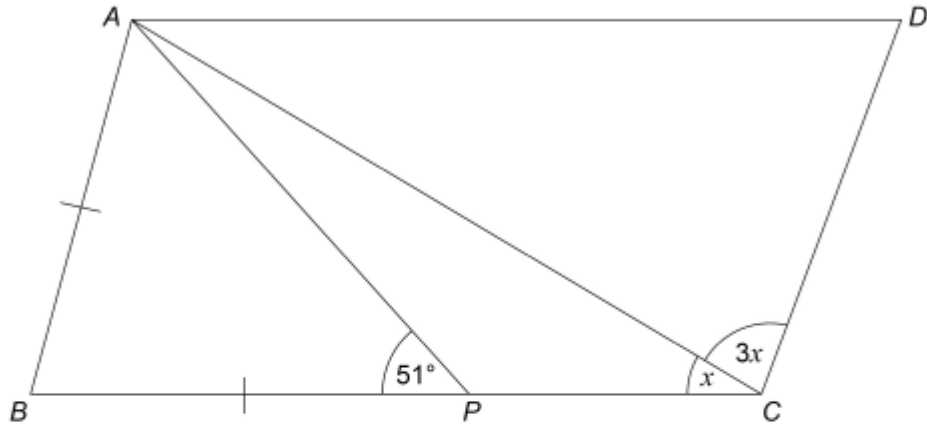
Answer \_\_\_\_\_ degrees

34.

8 *ABCD* is a parallelogram.

$AB = BP$

Not drawn accurately



Work out the size of angle  $x$ .

[4 marks]

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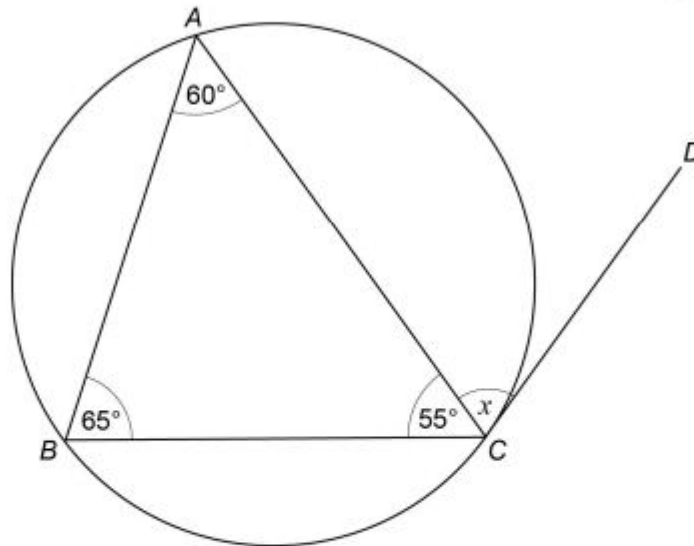
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Answer \_\_\_\_\_ degrees

35.

- 19  $A$ ,  $B$  and  $C$  are points on a circle.  
 $CD$  is a tangent to the circle.

Not drawn  
accurately



Write down the size of angle  $x$ .  
Give a reason for your answer.

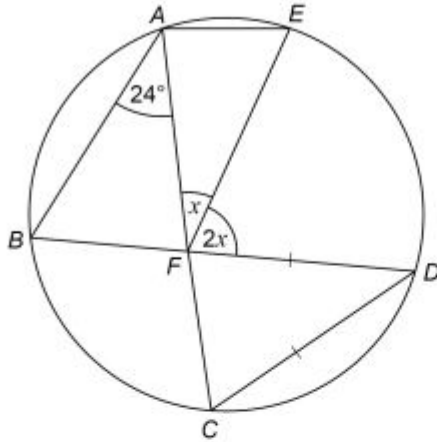
[2 marks]

Answer \_\_\_\_\_ degrees

Reason \_\_\_\_\_

36.

- 19 *A, B, C, D* and *E* are points on a circle.  
*BFD* and *AFC* are straight lines.  
 $DC = DF$



Not drawn accurately

Work out the size of angle  $x$ .

You **must** show your working which may be on the diagram.

**[4 marks]**

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Answer \_\_\_\_\_ degrees