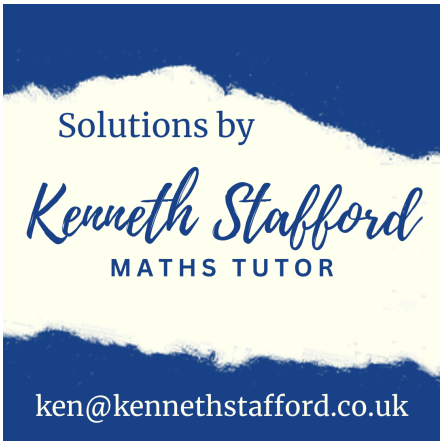
Angles (Questions from Past Papers)

Name: SOLUTIONS

GCSE (1 - 9)

Angles



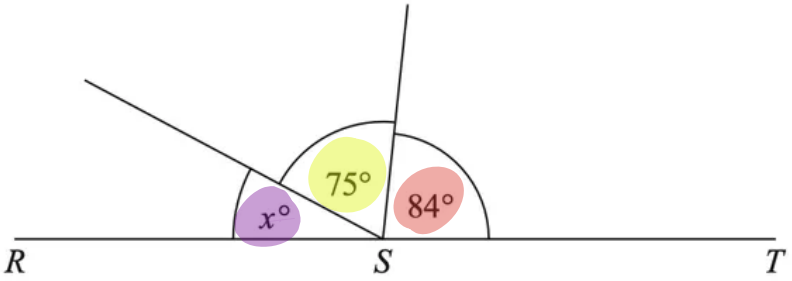


These questions are compiled from *released* Pearson Edexcel GCSE maths exam papers
They contain exam questions from up until the ***Summer 2023*** exam series
More recent exam papers do exist but are withheld for mock exams
As new exam papers are released these worksheets will gradually be updated
The ***most current*** version of these worksheets will always be available at: kennethstafford.co.uk

Question	Where the question appeared	Question	Where the question appeared
1	Edexcel, GCSE, Autumn 2021, Paper 2F, Q13	17	Edexcel, GCSE, Summer 2017, Paper 3F, Q13
2	Edexcel, GCSE, Autumn 2021, Paper 3F, Q15	18	Edexcel, GCSE, Autumn 2022, Paper 2F, Q11
3	Edexcel, GCSE, Autumn 2020, Paper 1F, Q25	19	Edexcel, GCSE, Autumn 2022, Paper 3F, Q20
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7	Edexcel, GCSE, Autumn 2019, Paper 1F, Q24	23	Edexcel, GCSE, November 2022, Paper 2F, Q13
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12	Edexcel, GCSE, Autumn 2018, Paper 2F, Q22		
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16	Edexcel, GCSE, Summer 2017, Paper 2F, Q9		

Angles (Questions from Past Papers)

1



RST is a straight line.

(i) Work out the value of x.

$75 + 84 = 159$

$180 - 159 = 21$

.....

(2)

(ii) Give a reason for your answer.

Angles on a straight line add up to 180

.....

.....

.....

(1)

(Total for Question 13 is 3 marks)

[Edexcel, GCSE, Autumn 2021, Paper 2F, Q13]

2

Jenna measures all the angles around a point.

Her results are 23°, 145°, 23° and 69°

Explain why these results cannot be true.

$23 + 145 + 23 + 69 = 260$

Because they add up to 260

.....

Angles around a point should add up to 360

.....

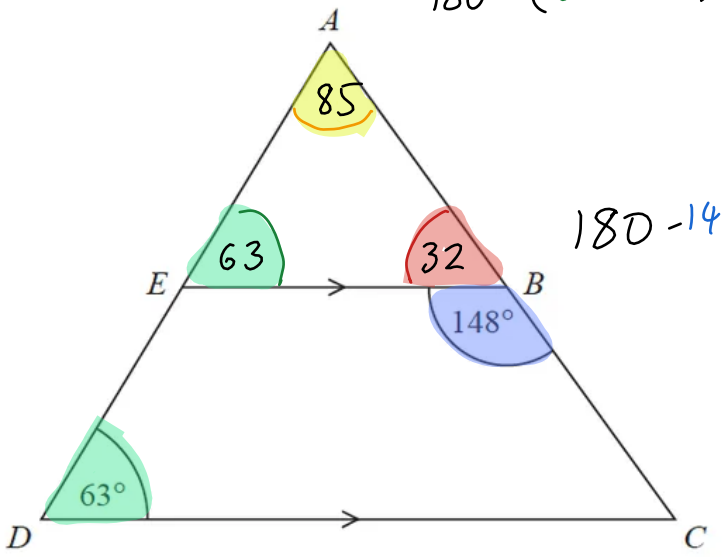
.....

(Total for Question 15 is 1 mark)

[Edexcel, GCSE, Autumn 2021, Paper 3F, Q15]

3

ADC is a triangle.



$180 - (63 + 32) = 85°$

$180 - 148 = 32$

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

Angle $EBC = 148°$
Angle $ADC = 63°$

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

AEB = ADC = 63 (corresponding angles are equal)

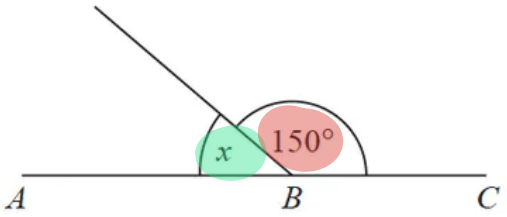
ABE = 63 (angles on a straight line sum to 180)

EAB = 85 (angles in a triangle add up to 180)

(Total for Question 25 is 5 marks)

[Edexcel, GCSE, Autumn 2020, Paper 1F, Q25]

4



ABC is a straight line.

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

180 − 150 = 30 °

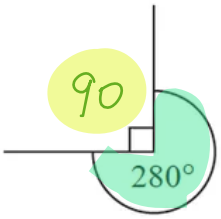
(1)

(ii) Give a reason for your answer.

Angles on a straight line add up to 180

(1)

The diagram below is wrong.



280 + 90 = 370

(b) Explain why.

Angles around a point sum to 360.

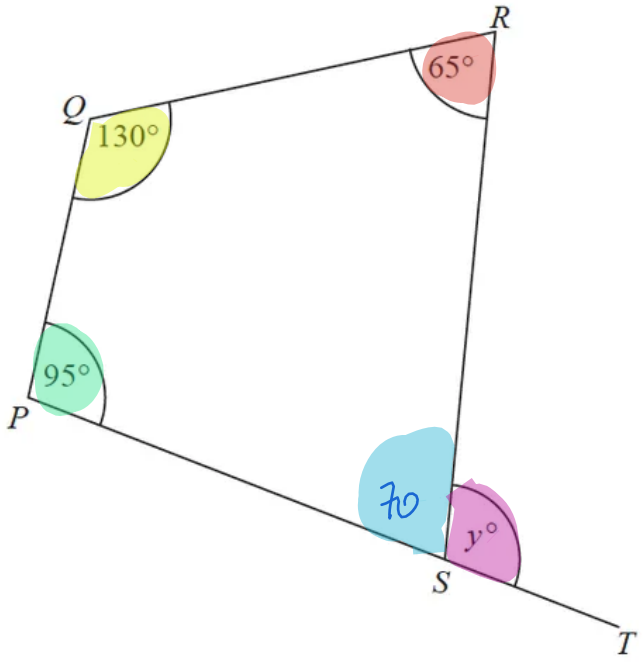
(1)

(Total for Question 8 is 3 marks)

[Edexcel, GCSE, Autumn 2020, Paper 2F, Q8]

5

PQRS is a quadrilateral.
PST is a straight line.



Find the value of y.

$130 + 95 + 65 = 290$

$360 - 290 = 70$

$180 - 70 = 110$

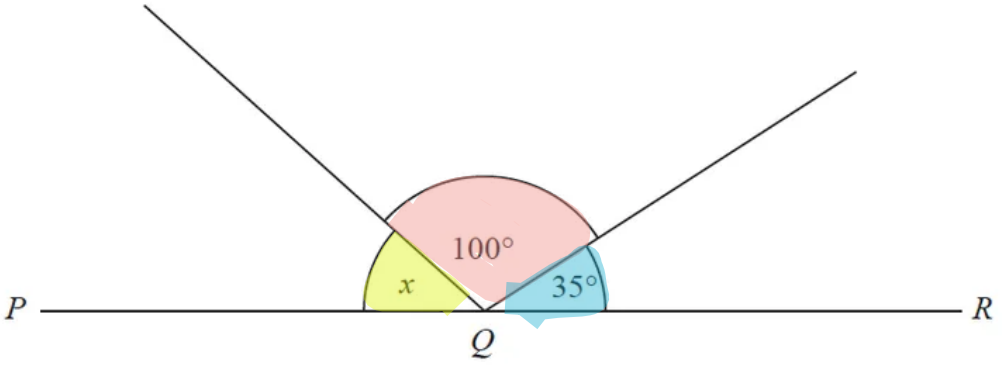
$y =$ 110

(Total for Question 11 is 3 marks)

[Edexcel, GCSE, Autumn 2020, Paper 3F, Q11]

6

PQR is a straight line.



Work out the size of angle x.

100 + 35 = 135

180 − 135 = 45

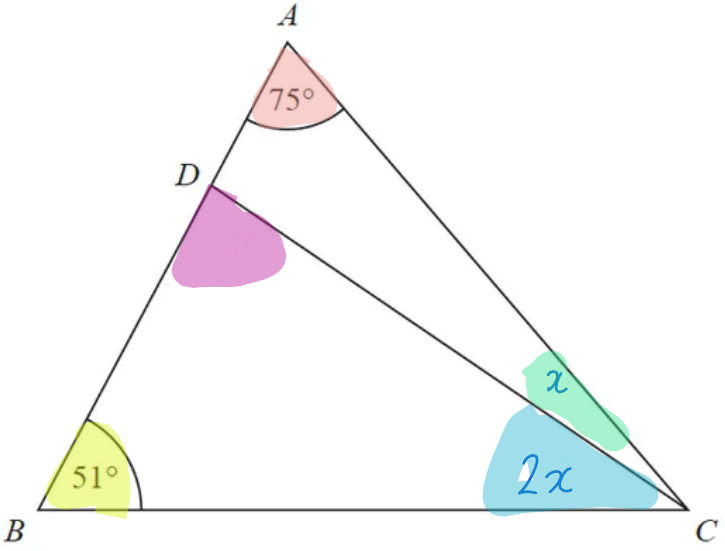
45 °

(Total for Question 9 is 2 marks)

[Edexcel, GCSE, Autumn 2019, Paper 1F, Q9]

7

The diagram shows triangle ABC.



ADB is a straight line.

the size of angle DCB : the size of angle ACD = 2 : 1

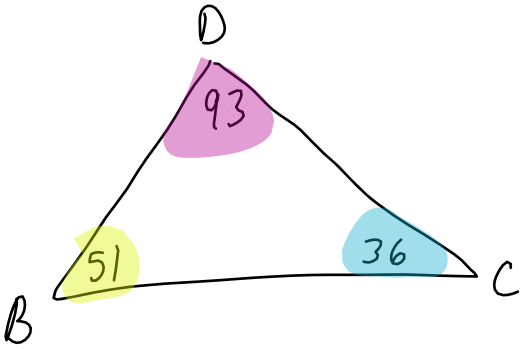
Work out the size of angle BDC.

DCB = 2x
ACD = x
Total = 3x

51 + 75 = 126

180 − 126 = 54

3x = 54
x = 18
2x = 36



51 + 36 = 87

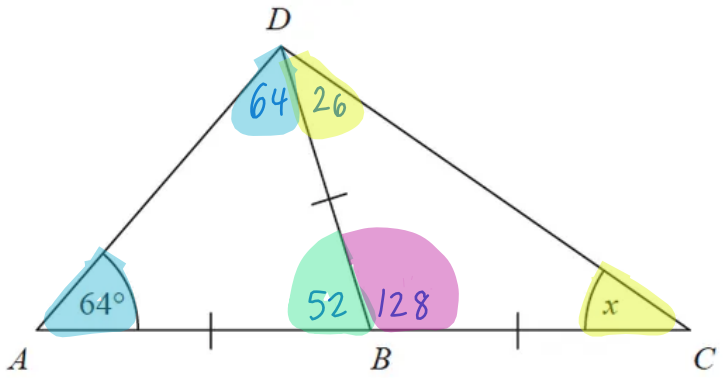
180 − 87 = 93

93 °

(Total for Question 24 is 4 marks)

[Edexcel, GCSE, Autumn 2019, Paper 1F, Q24]

8



ABC is a straight line.
AB = *BC* = *BD*.
Angle *DAB* = 64°

Work out the size of the angle marked *x*.
Give a reason for each stage of your working.

DAB = ADB = 64 (base angles in an isosceles are equal)

DBA = 52 (angles in a triangle sum to 180)

DBC = 128 (angles on a straight line sum to 180)

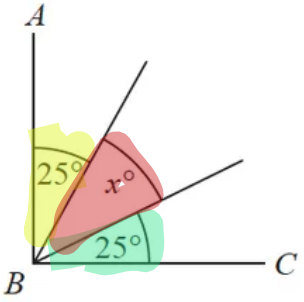
BDC = BCD = 26 (base angles in an isosceles are equal)

(Total for Question 17 is 4 marks)

[Edexcel, GCSE, Autumn 2019, Paper 2F, Q17]

9

AB and BC are perpendicular lines.



25 + 25 = 50

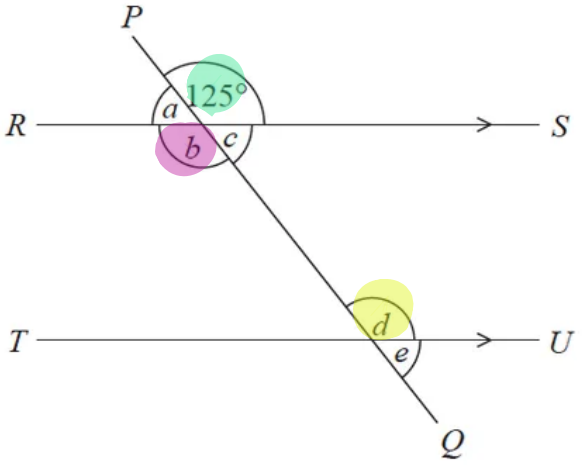
90 - 50 = 40

(a) Find the value of x.

$x =$ 40

(2)

RS and TU are parallel lines.
PQ is a straight line.



An angle of size 125° is shown on the diagram.

(b) (i) Write down the letter of one other angle of size 125°
Give a reason for your answer.

d - because it is corresponding

or

b - because it is vertically opposite

(2)

(ii) Explain why $a + b + c = 235°$

Because angles around a point sum to 360.

360 - 125 = 235

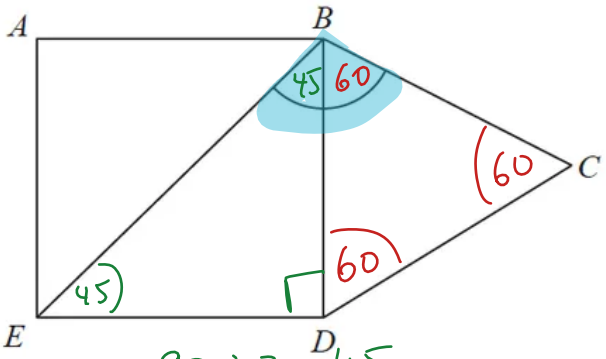
(1)

(Total for Question 12 is 5 marks)

[Edexcel, GCSE, Summer 2019, Paper 1F, Q12]

10

The diagram shows a square $ABDE$ and an equilateral triangle BCD.



180 ÷ 3 = 60

90 ÷ 2 = 45

Work out the size of angle EBC.

45 + 60 = 105°

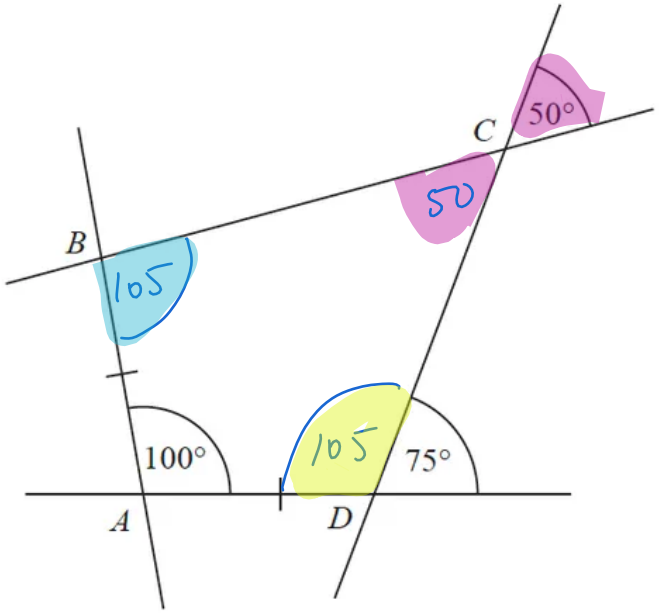
.....°

(Total for Question 20 is 2 marks)

[Edexcel, GCSE, Summer 2019, Paper 3F, Q20]

11

The diagram shows quadrilateral $ABCD$ with each of its sides extended.



$AB = AD$

Show that $ABCD$ is a kite.
Give a reason for each stage of your working.

$BCD = 50°$ (vertically opposite angles are equal)

$ADC = 105°$ (angles on a straight line sum to 180°)

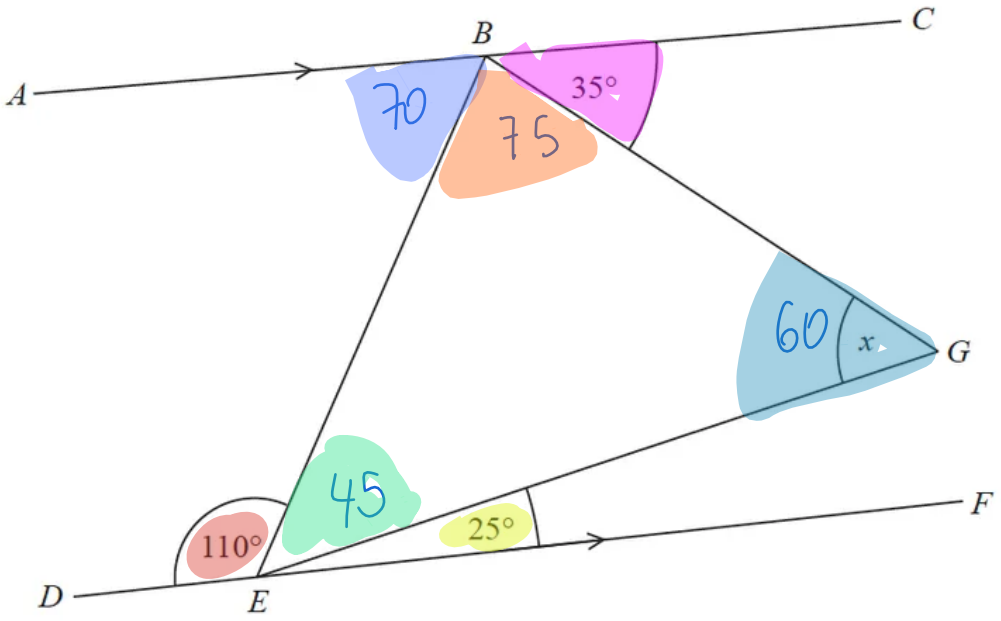
$ABC = 105°$ (angles in a quadrilateral sum to 180°)

(Total for Question 14 is 4 marks)

[Edexcel, GCSE, Autumn 2018, Paper 1F, Q14]

12

BEG is a triangle.



ABC and *DEF* are parallel lines.

Work out the size of angle *x*.
Give a reason for each stage of your working.

110 + 25 = 135

180 − 135 = 45

Angles on a straight line sum to 180°

45 + 25 = 70 = ABE

alternate angles are equal.

EBG = 75 angles on a straight line sum to 180°.

BGE = 60 angles in a triangle sum to 180°

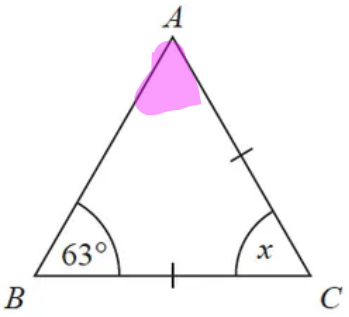
60 °

(Total for Question 22 is 4 marks)

[Edexcel, GCSE, Autumn 2018, Paper 2F, Q22]

13

Mary needs to work out the size of angle x in this diagram.



She writes

$x = 63°$ because base angles of an isosceles triangle are equal.

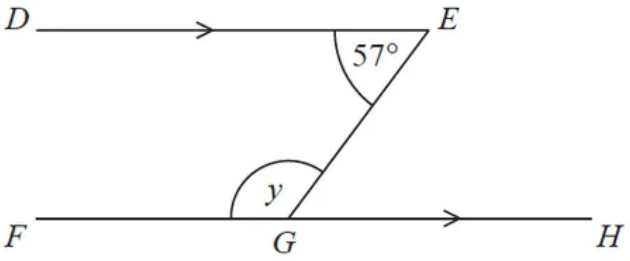
Mary is wrong.

(a) Explain why.

BAC = 63° x = 54°

(1)

William needs to work out the size of angle y in this diagram.



William writes

Working	**Reason**
angle $EGH = 57°$	because corresponding angles are equal
$y = 180° - 57°$ $y = 123°$	because angles on a straight line add up to 180°

One of William's reasons is wrong.

(b) Write down the correct reason.

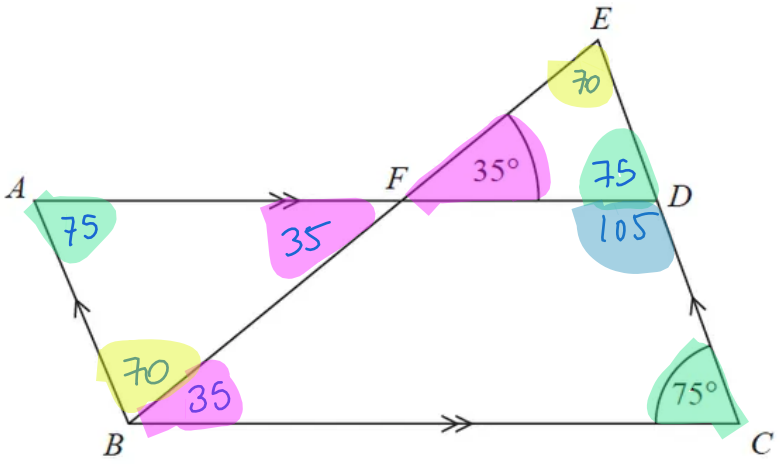
Because alternate angles are equal.

(1)

(Total for Question 15 is 2 marks)

[Edexcel, GCSE, Summer 2018, Paper 2F, Q15]

14



ABCD is a parallelogram.
EDC is a straight line.
F is the point on *AD* so that *BFE* is a straight line.

Angle *EFD* = 35°
Angle *DCB* = 75°

Show that angle *ABF* = 70°
Give a reason for each stage of your working.

AFB = EFD = 35°
vertically opposite angles are equal.

FAB = DCB = 75°
opposite angles in a parallelogram are equal.

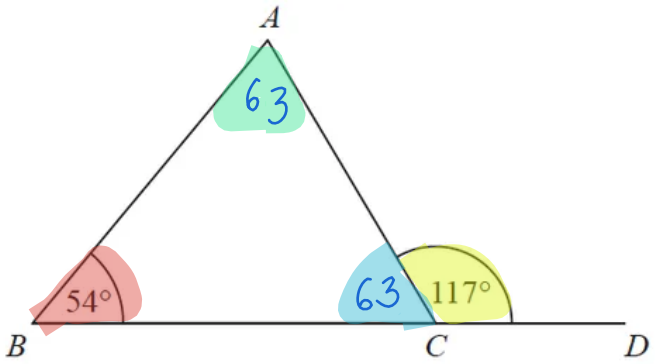
ABF = 70°
angles in a triangle sum to 180°

EDF = DCB = 75°
corresponding angles are equal.

(Total for Question 25 is 4 marks)

[Edexcel, GCSE, Autumn 2017, Paper 1F, Q25]

15



BCD is a straight line.
ABC is a triangle.

Show that triangle *ABC* is an isosceles triangle.
Give a reason for each stage of your working.

ACB = 180 − 117 = 63° (angles on a straight line sum to 180°)

BAC = 180 − (54 + 63) = 63° (angles in a triangle sum to 180°).

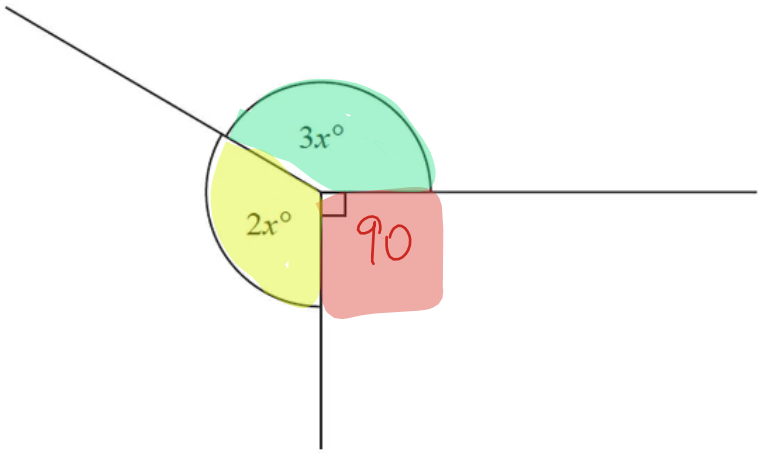
Triangle ABC is an isosceles as

BAC = ACB

(Total for Question 7 is 4 marks)

[Edexcel, GCSE, Autumn 2017, Paper 3F, Q7]

16



Find the value of x.

$2x + 3x + 90 = 360$

$5x + 90 = 360$

$5x = 270$

$x = \frac{270}{5}$

$= 54°$

(Total for Question 9 is 3 marks)

[Edexcel, GCSE, Summer 2017, Paper 2F, Q9]

17

The size of the largest angle in a triangle is 4 times the size of the smallest angle.
The other angle is 27° less than the largest angle.

Work out, in degrees, the size of each angle in the triangle.
You must show your working.

Smallest = x

Largest = $4x$

Other = $4x - 27$

Total = $9x - 27$

$9x - 27 = 180$

$9x = 207$

$x = 23$

23 °, 92 °, 65 °

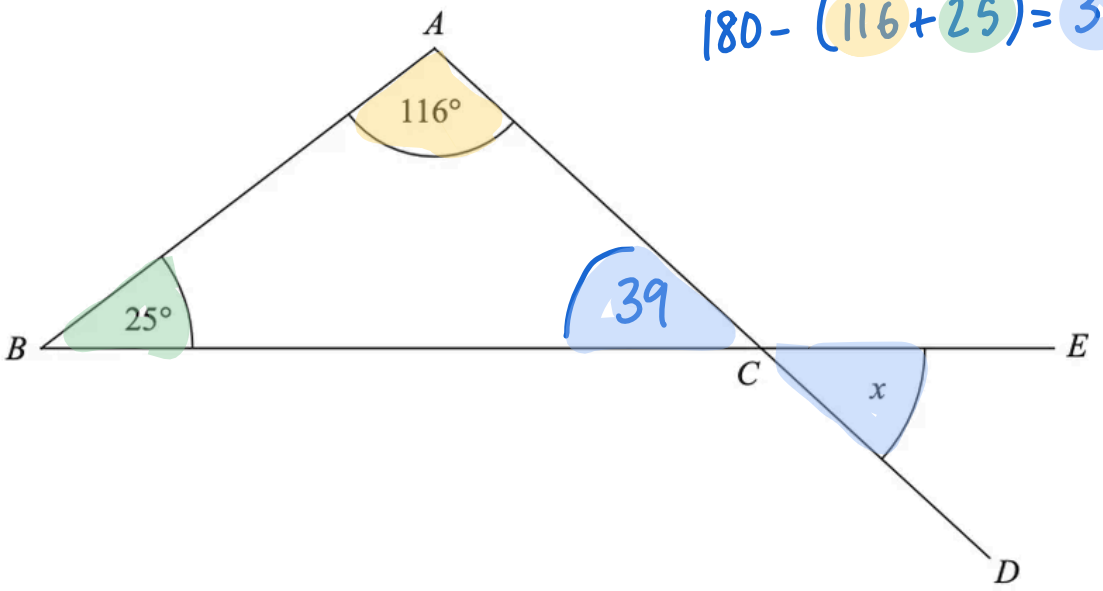
(23 × 4, 92 − 27)

(Total for Question 13 is 5 marks)

[Edexcel, GCSE, Summer 2017, Paper 3F, Q13]

18

The diagram shows a triangle ABC.



$180 - (116 + 25) = 39$

ACD and BCE are straight lines.

Work out the size of the angle marked x.
Give a reason for each stage of your working.

ACB = 39° (angles in a triangle sum to 180)

ECD = 39° (vertically opposite angles are equal)

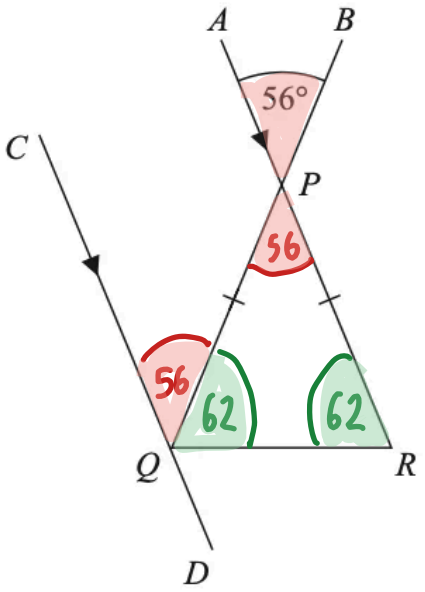
.....°

(Total for Question 11 is 3 marks)

[Edexcel, GCSE, Autumn 2022, Paper 2F, Q11]

19

In the diagram, PQR is an isosceles triangle with $PQ = PR$.



APR and CQD are parallel lines.
BPQ is a straight line.

Angle $APB = 56°$

Work out the size of angle CQR.
Give a reason for each stage of your working.

$CQP = APB = 56°$ corresponding angles are equal.

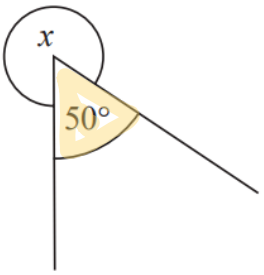
$PQR = PRQ = 62°$ base angles are equal in an isosceles triangle.

$CQR = 56 + 62 = 118°$

(Total for Question 20 is 5 marks)

[Edexcel, GCSE, Autumn 2022, Paper 3F, Q20]

20



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

360 - 50 = 310 °

(2)

A student says that an angle of 50° is an obtuse angle.

The student is wrong.

(b) Explain why.

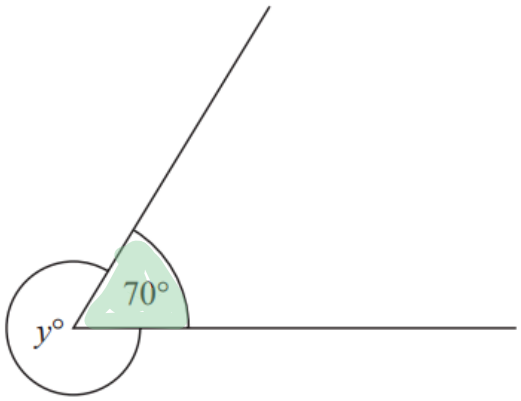
Obtuse angles are larger than 90 degrees.
50 degrees is an acute angle.

(1)

(Total for Question 8 is 3 marks)

[Edexcel, GCSE, Summer 2023, Paper 1F, Q8]

21



(a) Find the value of y.

360 - 70

$y =$ = 290 .....

(1)

(b) Give a reason for your answer.

Angles around a point sum to 360 degrees

.....

.....

.....

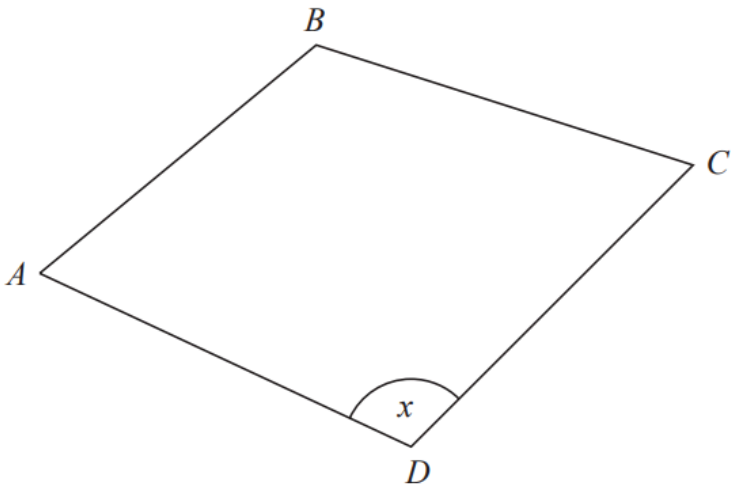
(1)

(Total for Question 9 is 2 marks)

[Edexcel, GCSE, November 2022, Paper 1F, Q9]

22

Here is a quadrilateral $ABCD$.



(a) Measure the length of the side AB.
Give your answer in centimetres.

4·3 to 4·7 centimetres

(1)

(b) Measure the size of the angle marked x.

108 to 112 °

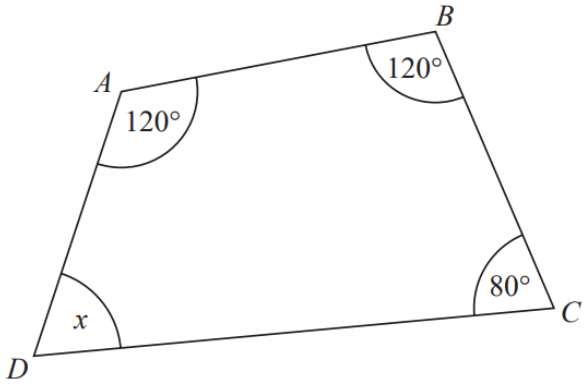
(1)

(Total for Question 6 is 2 marks)

[Edexcel, GCSE, November 2022, Paper 2F, Q6]

23

ABCD is a quadrilateral.



120
120
+80
320

(a) (i) Work out the size of angle *x*.

360 - 320 = 40 °

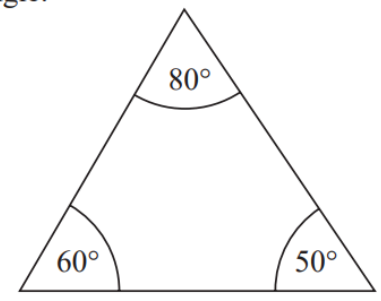
(1)

(ii) Give a reason for your answer.

Angles in a quadrilateral sum to 360 degrees.

(1)

The diagram below shows a triangle.



80 + 50 + 60 = 190°

The diagram is wrong.

(b) Explain why.

Angles in a triangle sum to 180 degrees.

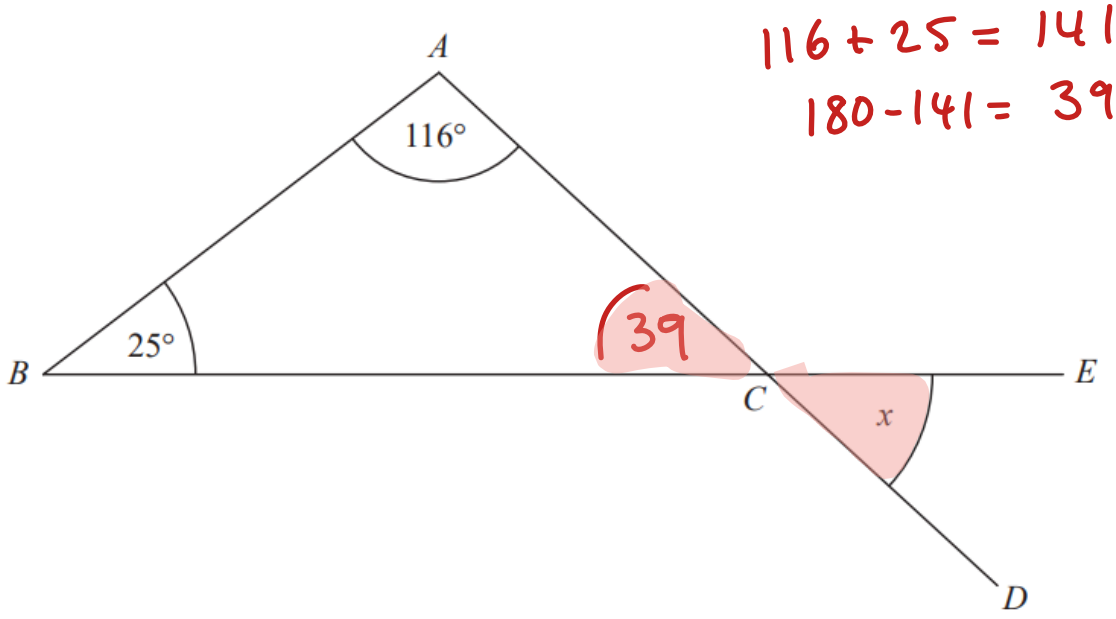
(1)

(Total for Question 13 is 3 marks)

[Edexcel, GCSE, November 2022, Paper 2F, Q13]

24

The diagram shows a triangle ABC.



116 + 25 = 141

180 - 141 = 39

ACD and BCE are straight lines.

Work out the size of the angle marked x.
Give a reason for each stage of your working.

ACB = 39 (angles in a triangle sum to 180)

ECD = 39 (vertically opposite angles are equal)

.....°

(Total for Question 11 is 3 marks)

[Edexcel, GCSE, Summer 2022, Paper 2F, Q11]