Solutions by
Kenneth Stafford
MATHS TUTOR
ken@kennethstafford.co.uk

GCSE (9-1) Grade 4

Angles

Instructions

Use **black** ink or ball-point pen.
Fill in the boxes at the top of this page with your name.
Answer **all** questions.
Answer the questions in the spaces provided
– there may be more space than you need.
Show all your working out

Information

The marks for **each** question are shown in brackets.
Use this as a guide as to how much time to spend on each question.
Questions labelled with an **asterisk** (*) are ones where the quality of your written communication will be assessed

Advice

Read each question carefully before you start to answer it
Attempt every question
Check your answers if you have time at the end

1.

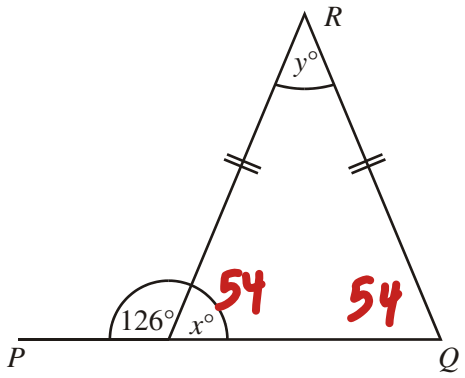


Diagram **NOT** accurately drawn

PQ is a straight line.

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

180 - 126 = 54

..... °

(1)

(b) (i) Work out the size of the angle marked $y°$.

54 + 54 = 108

180 - 108 = 72

72

..... °

(ii) Give reasons for your answer.

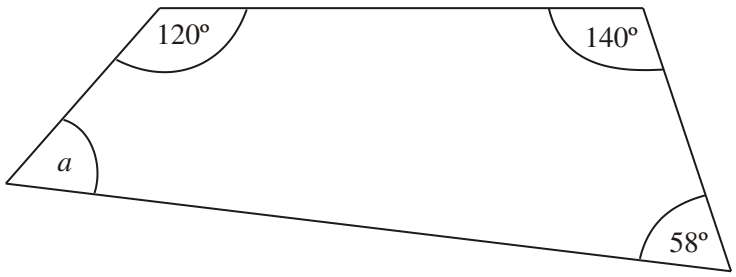
Base angles in an isosceles are equal.

Angles in a triangle sum to 180

(3)

(4 marks)

2.



120
140
+ 58
318
1

Diagram **NOT** accurately drawn

Work out the size of the angle *a*.

360 - 318 = 42

..... °

(2 marks)

3.

60 + 50 = 110

180 - 110 = 70

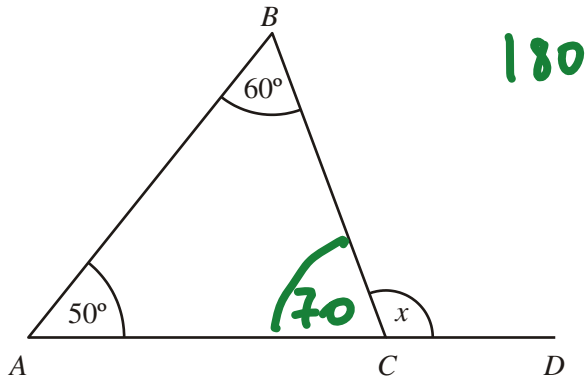


Diagram **NOT** accurately drawn

In the diagram, *ABC* is a triangle.
ACD is a straight line.
Angle *CAB* = 50°.
Angle *ABC* = 60°.

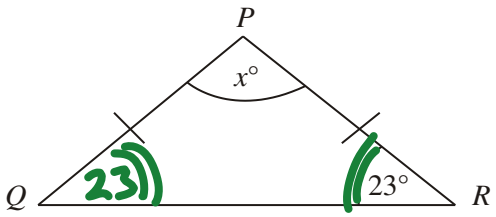
Work out the size of the angle marked *x*.

180 - 70 = 110

..... °

(2 marks)

4.



23 + 23 = 46

Diagram **NOT** accurately drawn

PQR is an isosceles triangle.

PQ = *PR*.
Angle *R* = 23°.

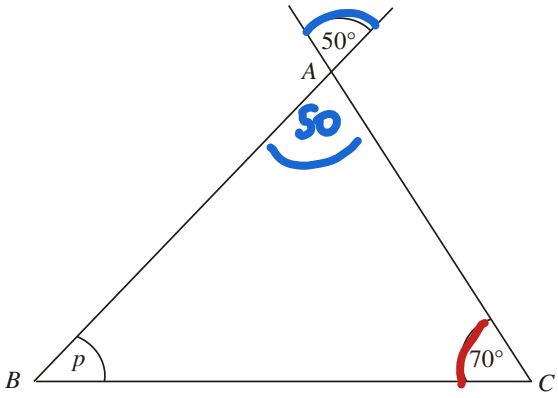
Work out the value of *x*.

180 - 46 = 134

x = ...

(2 marks)

5.



50 + 70 = 120

Diagram **NOT** accurately drawn

ABC is a triangle.

Work out the size of the angle marked *p*.

180 - 120

= 60

p = ... °

(2 marks)

6.

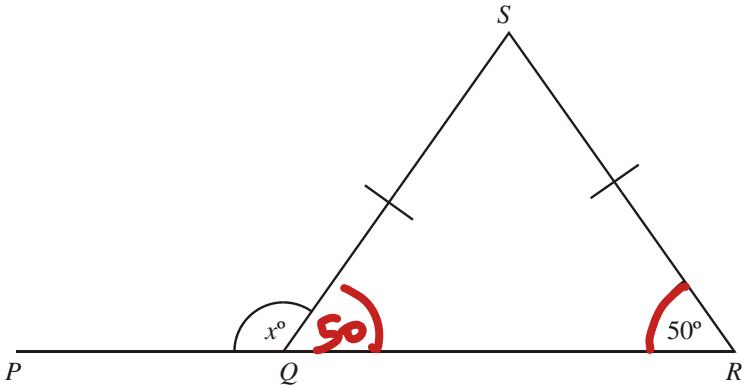


Diagram **NOT** accurately drawn

PQR is a straight line.
SQ = *SR*.

(i) Work out the size of the angle marked $x°$

180 - 50 = 130 ..... °

(ii) Give reasons for your answer.

Base angles in an isoxeles are equal

Angles in a triangle sum to 180°

(3 marks)

7.

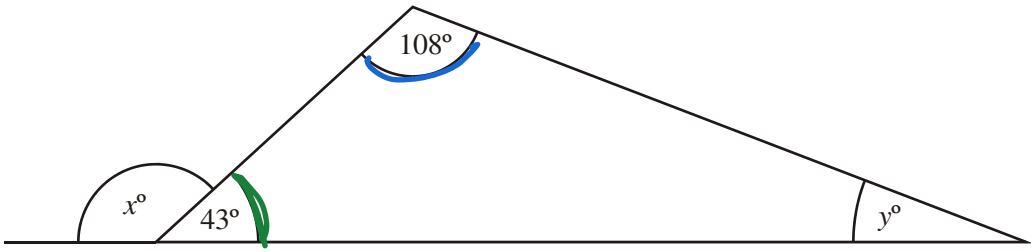


Diagram **NOT** accurately drawn

(a) Work out the value of x.

180 - 43 = x = 137

(1)

(b) Work out the value of y.

43 + 108 = 151

180 - 151 = y = 29

(2)

(3 marks)

8.

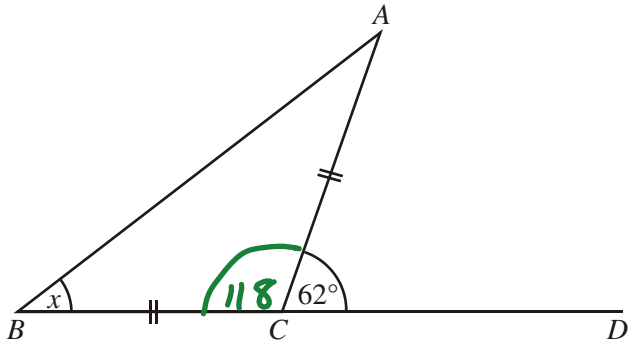


Diagram **NOT** accurately drawn

Triangle ABC is isosceles, with $AC = BC$.

Angle $ACD = 62^0$.

180 - 118 = 62

BCD is a straight line.

Work out the size of angle x.

$\frac{62}{2} = 31$

x = 31 ^{0}

(2 marks)

9.

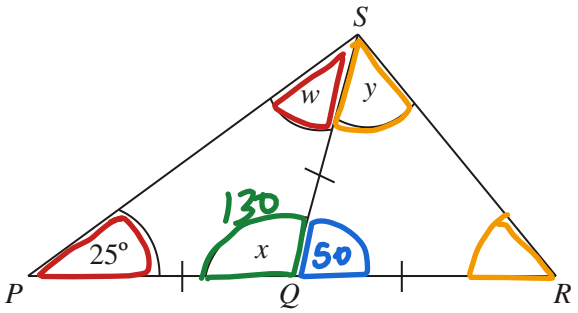


Diagram **NOT** accurately drawn

PQR is a straight line.

PQ = *QS* = *QR*.

Angle *SPQ* = 25°.

(a) (i) Write down the size of angle *w*.

25 .....°

(ii) Work out the size of angle *x*.

180 - (25 x 2) = 130 .....°

(2)

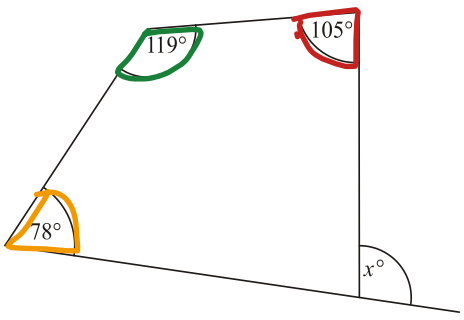
(b) Work out the size of angle *y*. 180 - 130 = 50

50 ÷ 2 = 25 .....°

(2)

(4 marks)

10.



78
119
+ 105
302
12

Diagram **NOT** accurately drawn

Work out the value of *x*.

360 - 302 = 58°

x = ...

(3 marks)

11.

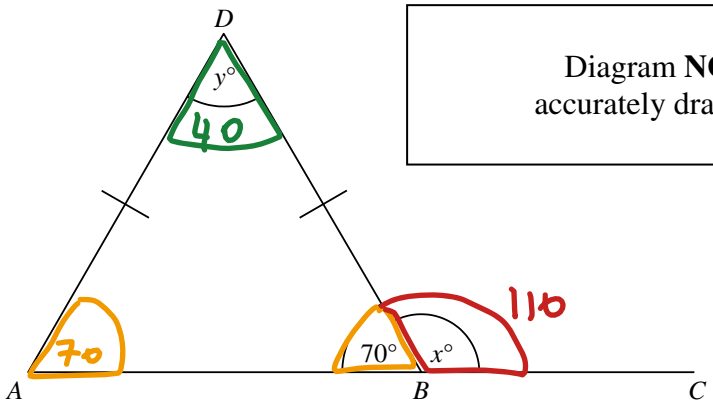


Diagram **NOT** accurately drawn

ABD is a triangle. *ABC* is a straight line.
Angle *ABD* = 70°.
AD = *BD*.

(a) (i) Work out the value of *x*. 180 - 70 = 110°

x = ...

(ii) Give a reason for your answer.

Angles on a straight line sum to 180°

(2)

(b) (i) Work out the value of *y*. 180 - (70 + 70) = 40°

y = ...

(ii) Give a reason for your answer.

Base angles are equal.

Angles in a triangle sum to 180°

(3)

(5 marks)

12.

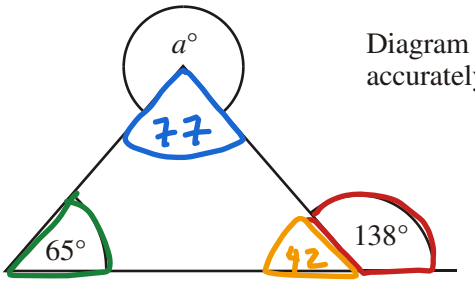


Diagram **NOT** accurately drawn

180 - 138 = 42°

Work out the value of *a*.

360 - 77 = 283°

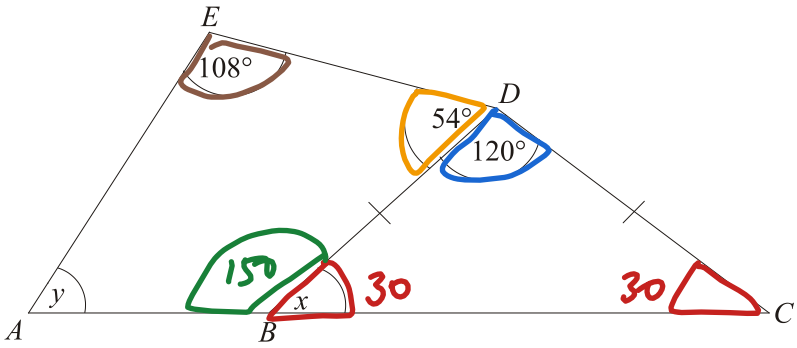
65 + 42 = 107

180 - 107 = 77

a = ...

(3 marks)

13.



180 - 120 = 60

60 ÷ 2 = 30

Diagram **NOT** accurately drawn

In the diagram, *ABC* is a straight line and *BD* = *CD*.

180 - 30 = 150°

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

108 + 150 + 54 + = 312

360 - 312 = 48°

.....°

(2)

(b) Work out the size of angle *y*.

.....°

(3)

(5 marks)