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

GCSE (9-1) Grade 4 Angles in Parallel Lines

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.

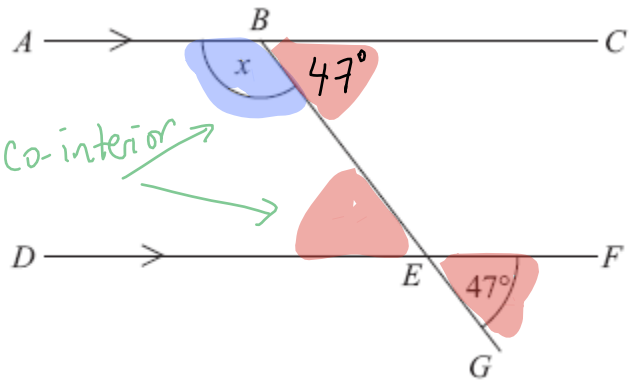


Diagram **NOT** accurately drawn

ABC and *DEF* are parallel lines.
BEG is a straight line.
Angle *GEF* = 47°.

180 − 47 = 133°

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

Give reasons for your answer.

Angle EBC = 47° because it's corresponding to angle EFG

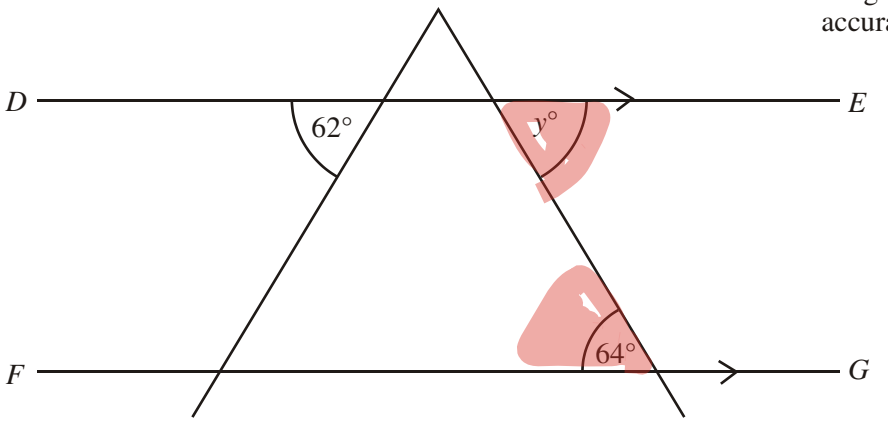
ABE = 133° Angles on a straight line sum to 180°

.....°

(3 marks)

2.

Diagram **NOT** accurately drawn



DE is parallel to *FG*.

(i) Find the size of the angle marked $y°$.

64°

.....°

(1)

(ii) **Give a reason for your answer.**

Alternate angles are equal.

.....

.....

(2)

(3 marks)

3.

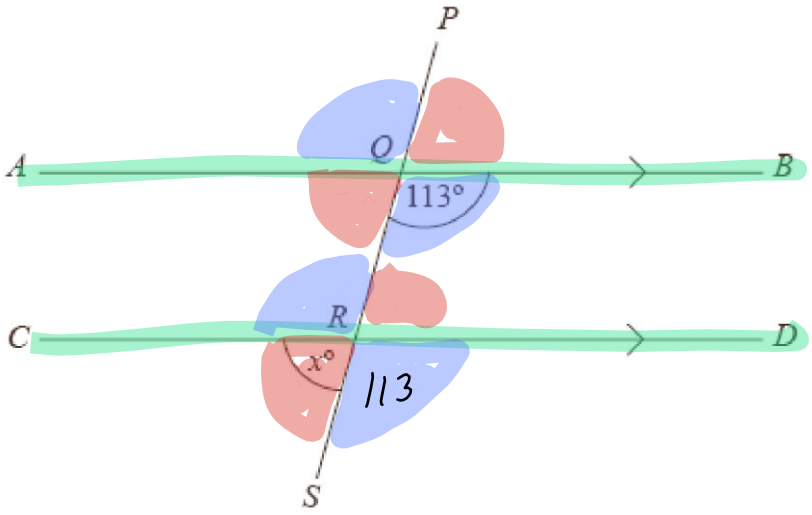


Diagram **NOT** accurately drawn

AQB, CRD and $PQRS$ are straight lines.

$180 - 113 = 57°$

AB is parallel to CD.

Angle $BQR = 113°$.

(a) Work out the value of x.

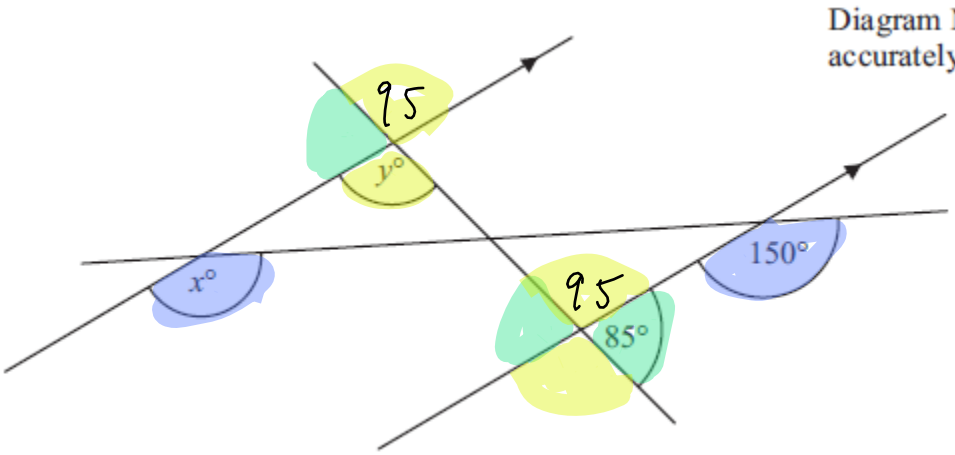
$x =$ 57°

(b) Give reasons for your answer.

Corresponding angles are equal. Angles on a straight line sum to 180.

(4 marks)

4.



(a) i) Find the value of x.

150°

.....

(1)

ii) Give reasons for your answer.

corresponding angles are equal

.....

(1)

(b) i) Find the value of y.

95°

.....

(2)

ii) Give reasons for your answer.

Corresponding angles are equal.
Angles on a straight line sum to 180

.....

(2)

(6 marks)

***5.**

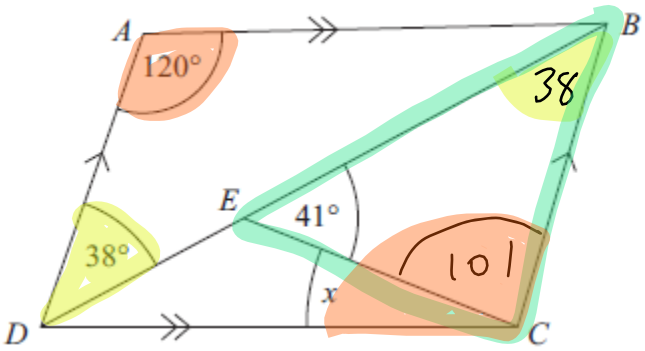


Diagram **NOT** accurately drawn

38 + 41 = 79

180 − 79 = 101

ABCD is a parallelogram.

Angle *ADB* = 38°.
Angle *BEC* = 41°.
Angle *DAB* = 120°.

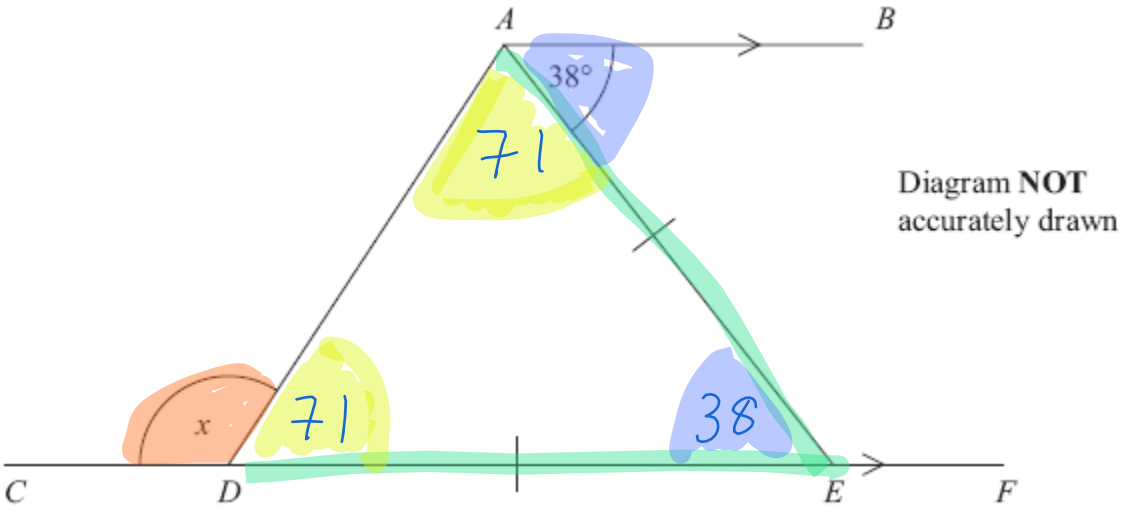
Calculate the size of angle *x*.
You must give reasons for your answer.

$x = 120° - 101 = 19°$

Alternate angles are equal.
Angles in a triangle sum to 180.
Opposite angles in a parallelogram are equal.

(4 marks)

***6.**



CDEF is a straight line.
AB is parallel to *CF*.
DE = AE.

Work out the size of the angle marked *x*.
You must give reasons for your answer.

$180 - 38 = 142$

$142 \div 2 = 71$

$x = 180 - 71 = 109°$

Alternate angles are equal.
Base angles in an isosceles are equal.
Angles on a straight line sum to 180.

(4 marks)

***7.**

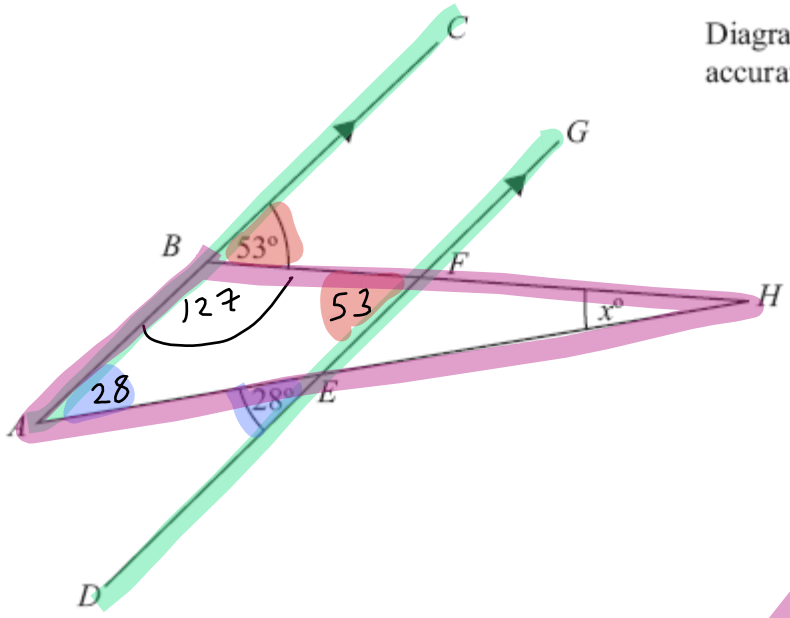
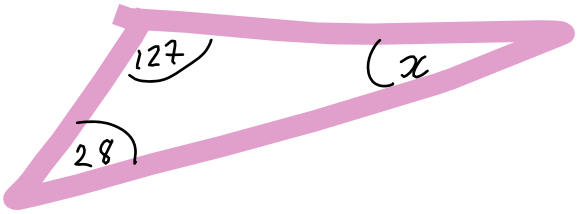


Diagram **NOT** accurately drawn



ABC and *DEFG* are parallel.
AEH and *BFH* are straight lines.
Work out the size of the angle marked $x°$.

$$\begin{array}{r} 127 \\ -\ 28 \\ \hline 155 \end{array} \qquad \begin{array}{r} 180 \\ -\ 155 \\ \hline 25^\circ \end{array}$$

25°

..... °

(3 marks)