

Name: _____

GCSE (1 – 9)

Angles in Parallel Lines

Instructions

- Use **black** ink or ball-point pen.
- Answer all Questions.
- Answer the Questions in the spaces provided
– *there may be more space than you need.*
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out.**

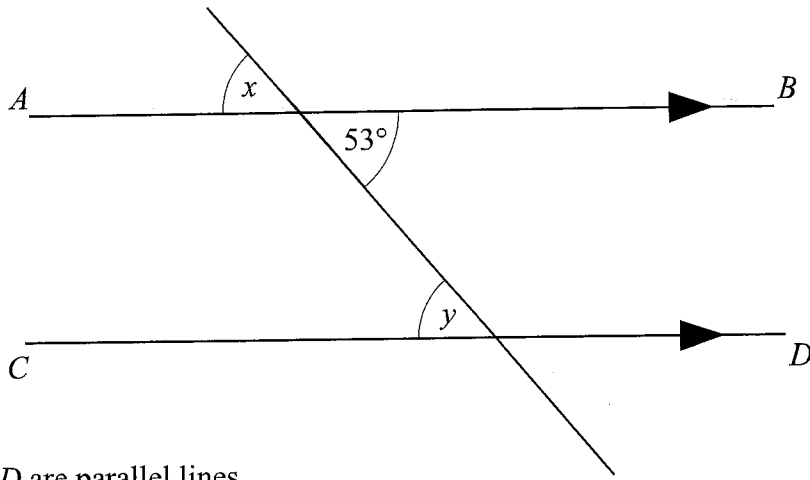
Information

- The marks for each Question are shown in brackets
– *use this as a guide as to how much time to spend on each Question.*

Advice

- Read each Question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every Question.
- Check your answers if you have time at the end

1



AB and CD are parallel lines.

(a) Write down the size of angle x .

.....53.....^o
(1)

(b) Give a reason for your answer.

.....(vertically) opposite angles are equal.....
.....
(1)

(c) Write down the size of angle y .

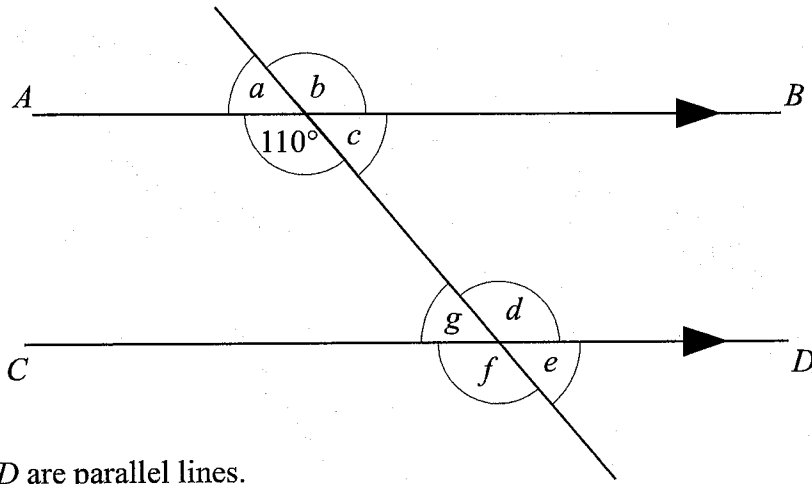
.....53.....^o
(1)

(d) Give a reason for your answer.

.....alternate angles are equal.....
.....
(1)

(Total for question 1 is 4 marks)

2



AB and *CD* are parallel lines.
An angle of 110° is shown on the diagram.

(a) Write down the letter of one other angle of size 110°

..... *f*
(1)

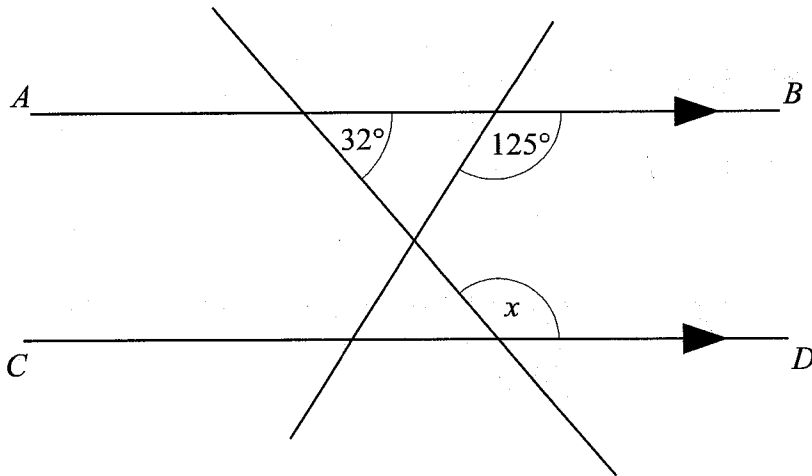
(b) Give a reason for your answer.

..... *Corresponding angles are equal*

[*or // b: opposite angles are equal d: alternate angles equal*]
(2)

(Total for question 2 is 3 marks)

3



AB and *CD* are parallel lines.

(a) Find the size of angle *x*

$$180 - 32 = 148$$

..... *148°*
(1)

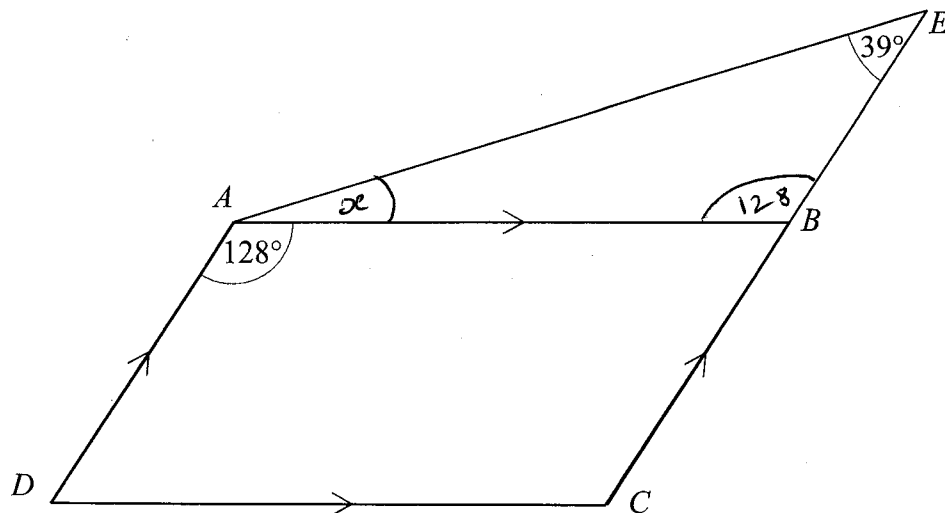
(b) Give a reason for your answer.

..... *Co-interior angles add to 180°*

[*or // angles on a straight line add to 180° AND*]
Corresponding / alternate angles are equal (2)

(Total for question 3 is 3 marks)

4



$ABCD$ is a parallelogram.

CBE is a straight line.

Angle $BAD = 128^\circ$

Angle $AEB = 39^\circ$

Find the size of angle BAE .

Give a reason for each stage of your working.

Angle $ABE = 128^\circ$ Alternate angles are equal

$$128 + 39 = 167^\circ$$

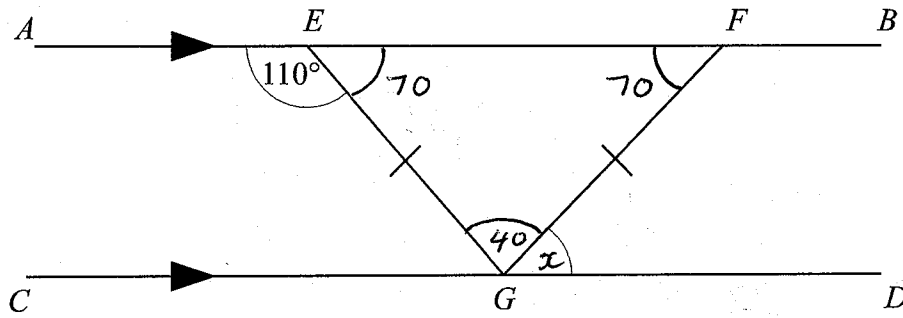
$$180 - 167 = 13^\circ$$

$BAE = 13^\circ$ Angles in a triangle add to 180°

..... 13

(Total for question 4 is 3 marks)

5



AB and CD are parallel lines.
 EFG is an isosceles triangle

Angle $AEG = 110^\circ$

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

$$\begin{aligned} \text{Angle } FEG &= 180 - 110 \\ &= 70^\circ \end{aligned}$$

Angle $EFG = 70^\circ$ Angles at the base of
 an isosceles triangle are
 equal

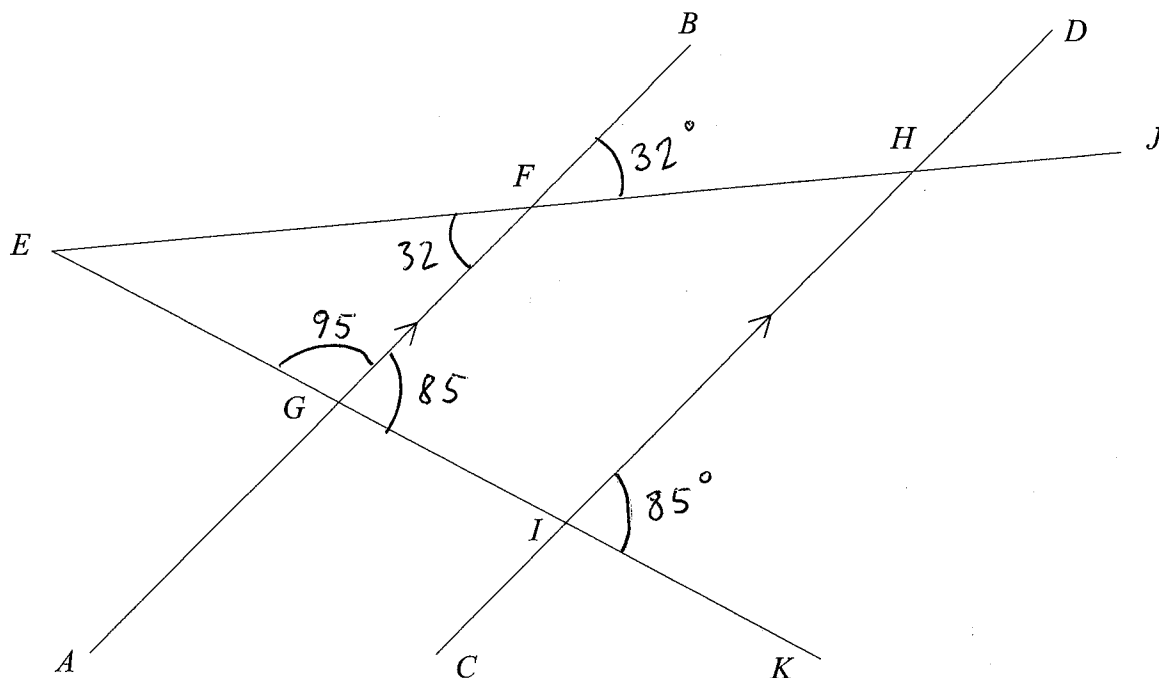
~~$$\begin{aligned} \text{Angle } EGF &= 180 - 70 - 70 \\ &= 40 \end{aligned}$$

Angles in a triangle add to 180°~~

$FGD = 70^\circ$ Alternate angles are equal

.....70.....°

(Total for question 5 is 3 marks)



AB and CD are parallel.

Angle $HIK = 85^\circ$

Angle $BFH = 32^\circ$

Find the size of angle FEG .

You must show how you got your answer.

$$\angle FGH = 32^\circ \quad \text{opposite angles are equal}$$

$$\angle FGI = 85^\circ \quad \text{corresponding angles are equal}$$

$$\angle EGF = 95^\circ \quad \text{Angles on a straight line add to } 180^\circ$$

$$(180 - 85 = 95)$$

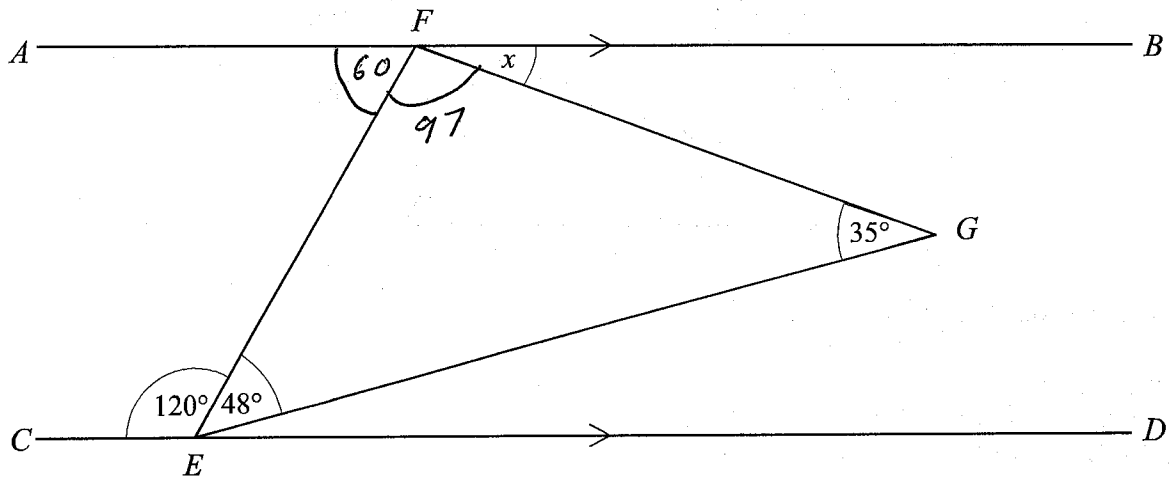
$$180 - 95 - 32 = 53^\circ$$

$$\angle FEG = 53^\circ \quad \text{Angles in a triangle add to } 180^\circ$$

.....53.....°

(Total for question 6 is 3 marks)

7



AB and CD are parallel.

Find the size of angle x .

Give a reason for each stage of your working.

$$180 - 120 = 60$$

$$\angle AFE = 60^\circ \quad \text{Co interior angles add to } 180^\circ$$

$$\angle EFG = 180 - 48 - 35 = 97^\circ$$

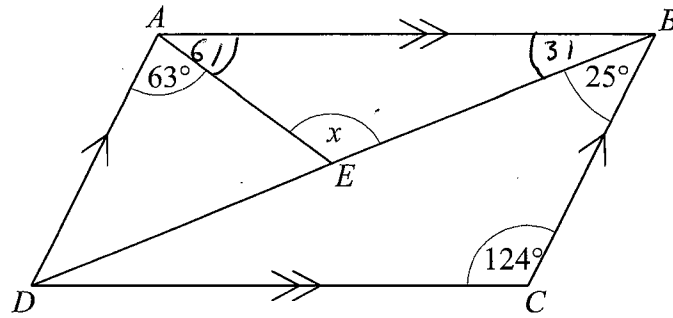
Angles in a triangle add to 180°

$$180 - 97 - 60 = 23^\circ$$

$$x = 23^\circ \quad \text{Angles on a straight line add to } 180^\circ$$

.....23.....°

(Total for question 7 is 4 marks)



$ABCD$ is a parallelogram.

Angle $DAE = 63^\circ$

Angle $BCD = 124^\circ$

Angle $CBD = 25^\circ$

Calculate the size of angle x .

Give reasons for each stage of your answer.

opposite angles in a parallelogram are equal

$$\therefore \angle BAD = 124^\circ$$

$$\angle BAE = 124 - 63 = 61^\circ$$

$$\angle ABC = 180 - 124 = 56^\circ$$

Co interior angles add to 180°

$$\angle ABE = 56 - 25 = 31^\circ$$

$$180 - 61 - 31 = 88^\circ$$

Angles in a triangle add to 180°

..... 88

(Total for question 8 is 3 marks)