Bishops Online Tutoring

Education Consultancy

Edexcel GCSE Mathematics

ANGLES: PARALLEL LINES

Materials Required:

- Pen
- HB Pencil
- Ruler (in centimetres and millimetres)
- Protractor
- Compass

Instructions:

- Use a black ink pen to answer all questions
- Fill your name in the section below
- Answer the questions in the spaces provided
- Show your working out for all answers

Information:

- The marks allocated for each question are displayed within brackets – utilise this information to gauge the appropriate amount of time to dedicate to each question
- Questions marked with an asterisk (*) will assess your written communication; be careful of spelling, punctuation and grammar with these questions

Advice:

- Carefully read the question before attempting to answer it
- Be vary of time and try to answer every question
- If you have enough time in the end, go back and check your answers. A good way to check your answers is to retry the question with the hope of getting the same answer as before without looking at your working out from before

NO CALCULATOR ALLOWED

NAME:	

1.

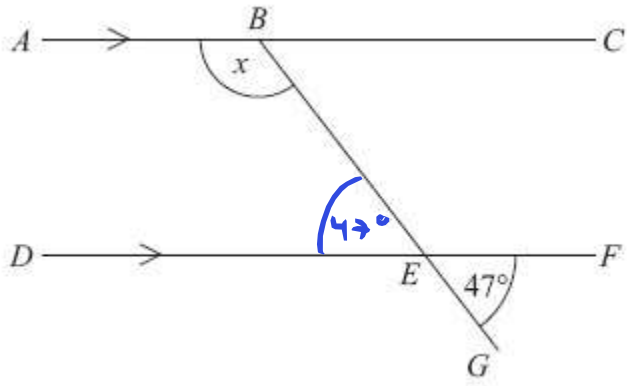


Diagram **NOT** accurately drawn

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

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

Give reasons for your answer.

DEB = 47° as opposite angles are equal

Since co-interior angles = 180°

180 − 47 = x

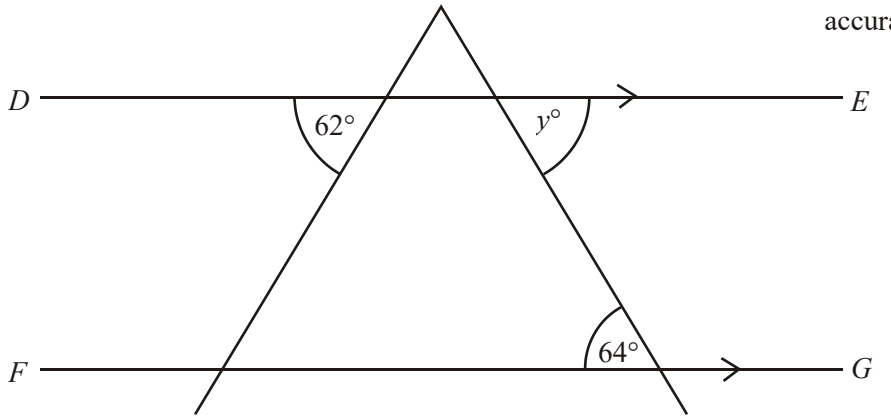
x = 133

133 .....°

(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.

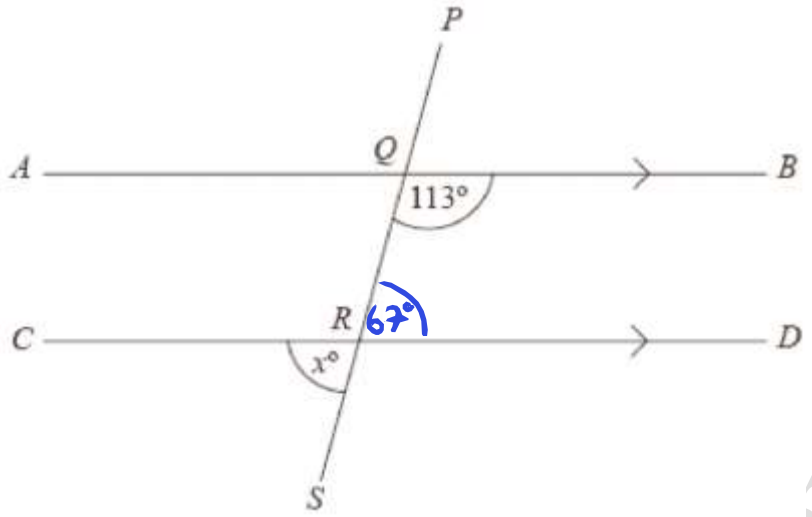


Diagram **NOT** accurately drawn

AQB, *CRD* and *PQRS* are straight lines.

AB is parallel to *CD*.

Angle *BQR* = 113°.

(a) Work out the value of *x*.

QRD = 180 − 113 = 67 (co-interior angles)

x = 67° as CRS and QRD are opposite angles

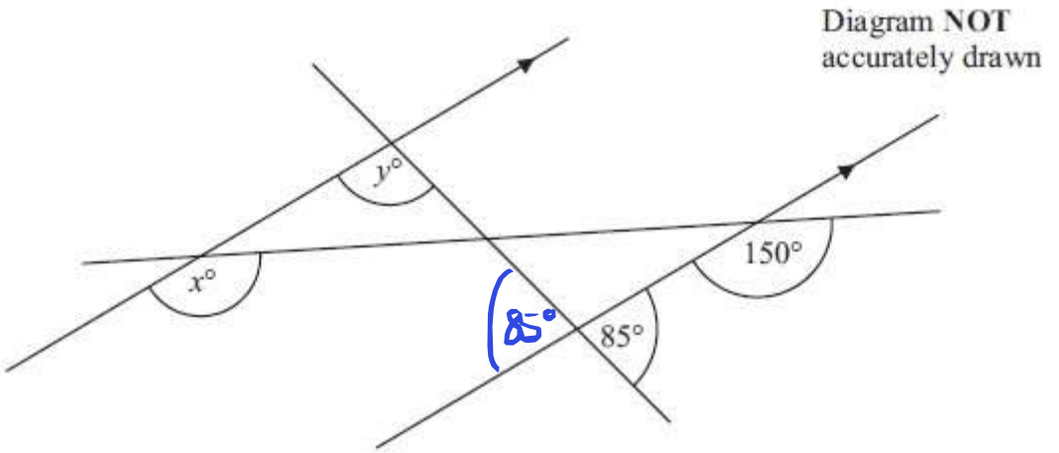
x = 67

(b) Give reasons for your answer.

QRD = 67° as QRD and BQR are co-interior angles. Angle x and QRD are opposite angles and thus are equal

(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.

$y = 180 - 85$

$y = 95$

95

(2)

ii) Give reasons for your answer.

Opposite angles are equal, co-interior angles add up to 180°

(2)

(6 marks)

Angles in a triangle = 180°

***5.**

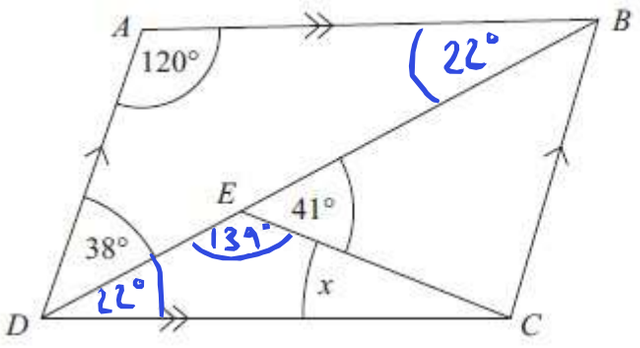


Diagram **NOT** accurately drawn

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.

ABD = 22° as angles in a triangle add up to 180°

38 + 120 = 158, 180 - 158 = 22

CDB = ABD as they're opposite angles and thus equal

DEC = 139 as angles on a straight line equal to 180°

180 - 41 = 139

139 + 22 = 161

Angle x = 180 - 161 = 19°

(4 marks)

***6.**

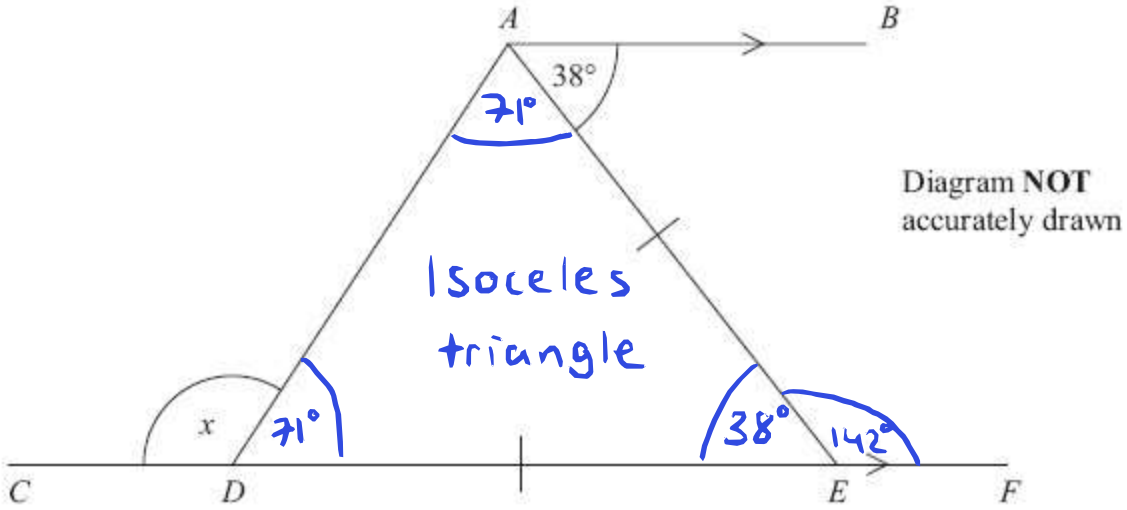


Diagram **NOT** accurately drawn

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.

AEF = 180 - 38 = 142 (Co-interior angles)

DEA = 180 - 142 = 38 as angles on a straight line equal to 180°

Base angles in isoceles triangle are equal

∴ 180 - 38 = 142, 142 ÷ 2 = 71

Angle x = 180 - 71 = 109 as angles on a Straight line add up to 180°

(4 marks)

*7.

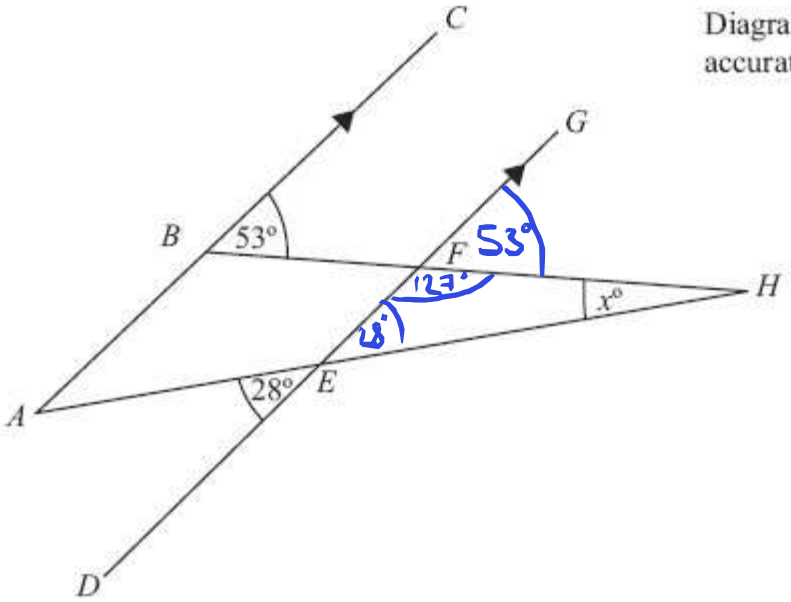


Diagram **NOT** accurately drawn

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

GFH = 53° as alternate angles are equal

GEH = 28° as opposite angles are equal

DFH = 180 - 53 = 127° as angles on a straight line add up to 180°

Angles in a triangle = 180°

∴ x = 180 - 127 - 28 = 25

x = 25°

x = 25 .....°

(3 marks)