St. Patrick's High School, Keady

Mathematics Department

GCSE Mathematics Practice Booklet

M3

Topic 5 – Geometry and Measures 2

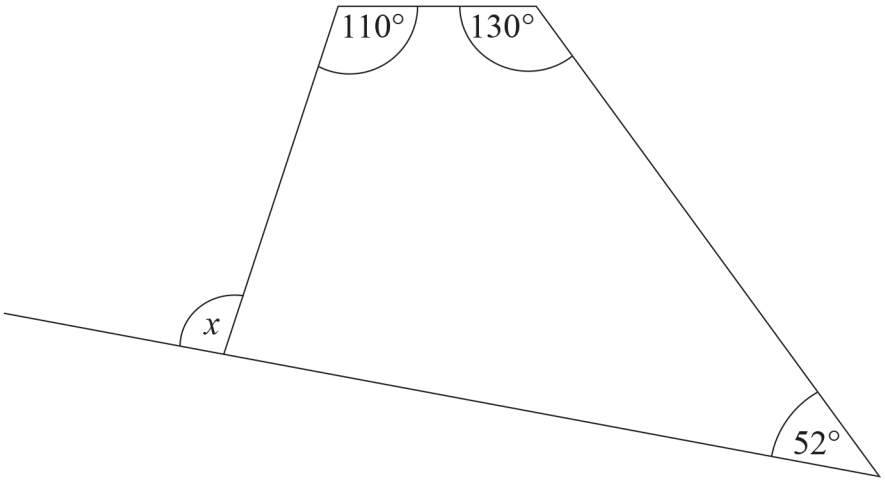
Angles

Questions taken from CCEA Past Papers

Mark Scheme included at the end of this booklet

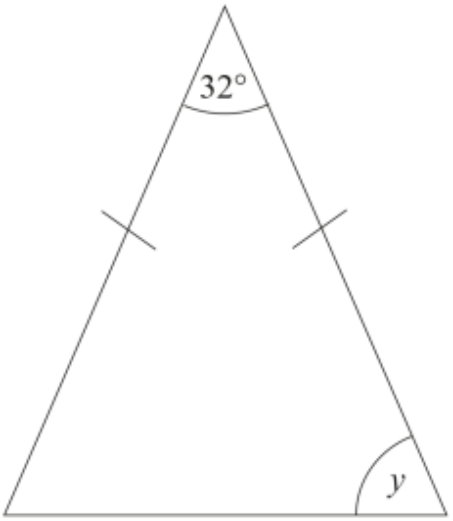
Q1

(a) Work out the size of the angle x in the diagram below.



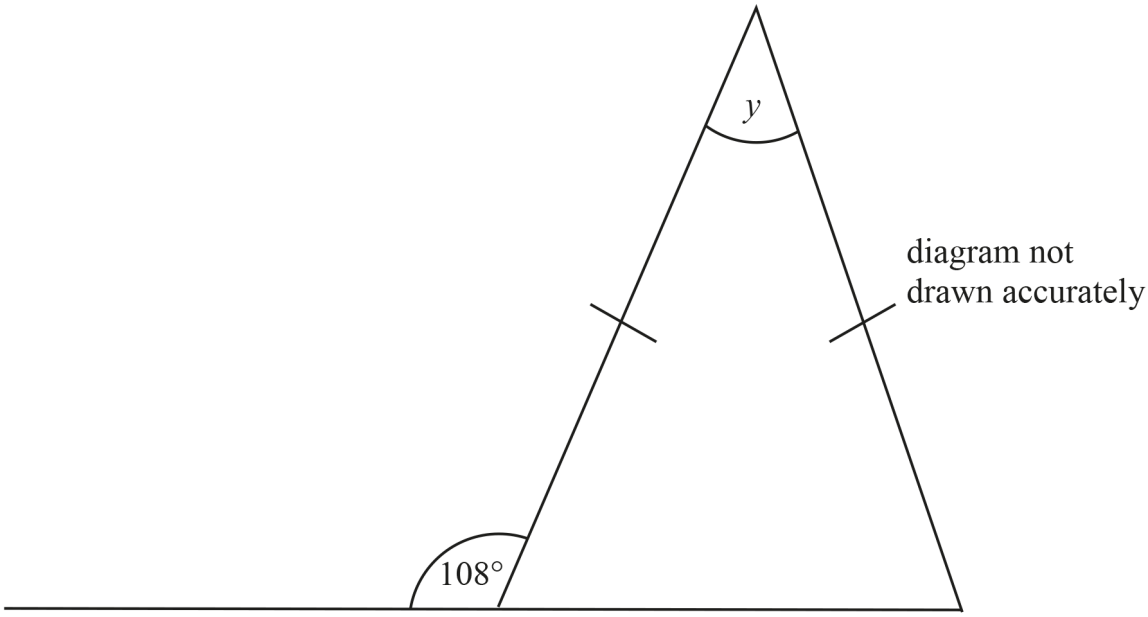
Answer _____° [3]

(b) Work out the size of the angle y in the diagram below.



Answer _____° [2]

Q2 Work out the size of angle y in the diagram below.



Answer y = _____° [3]

Q3 Work out the size of the angle w.

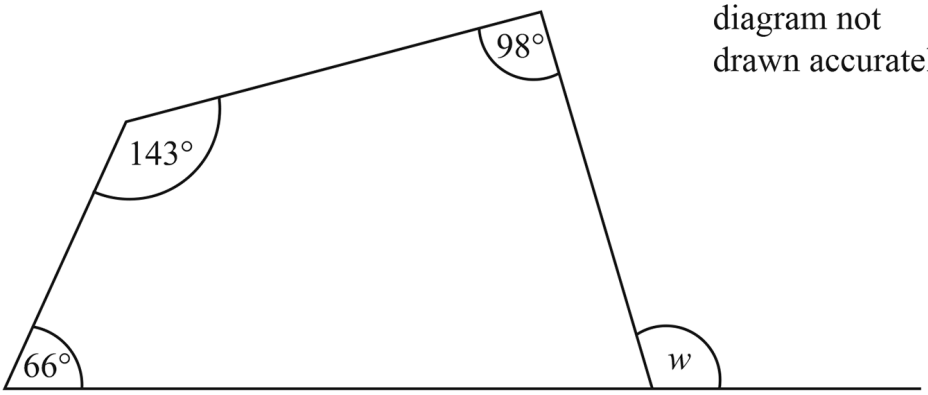
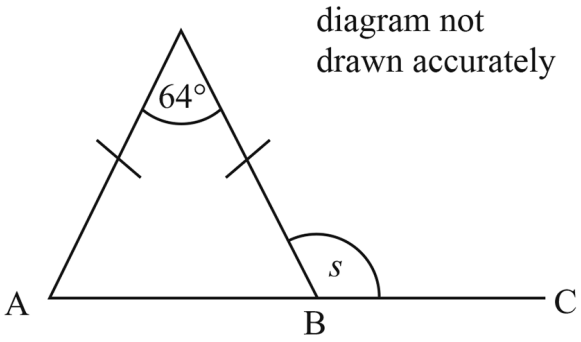


diagram not
drawn accurately

Answer $w =$ _____ ° [3]

Q4 The triangle shown is isosceles. ABC is a straight line.



Work out the size of the angle s.

Answer s = _____ ° [3]

Q5 Calculate the size of angle x in this quadrilateral.

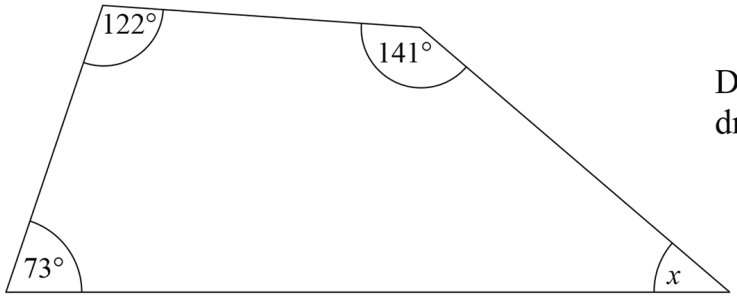
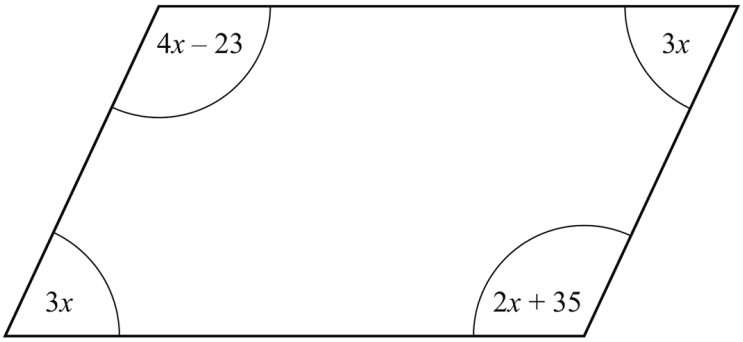


Diagram not drawn accurately

Answer $x =$ _____ ° [2]

Q6



The diagram above is a parallelogram.
The sizes of the angles in degrees are $3x$, $4x - 23$, $3x$ and $2x + 35$
Work out the value of x.

Answer $x =$ _____ [3]

Q7

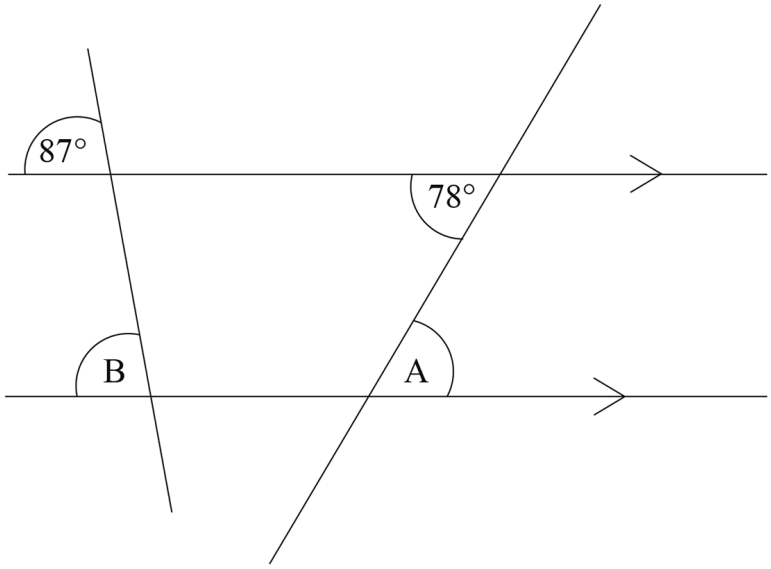


diagram not drawn accurately

Find the size of angle

(a) A Answer _____° [1]

(b) B Answer _____° [1]

Q8

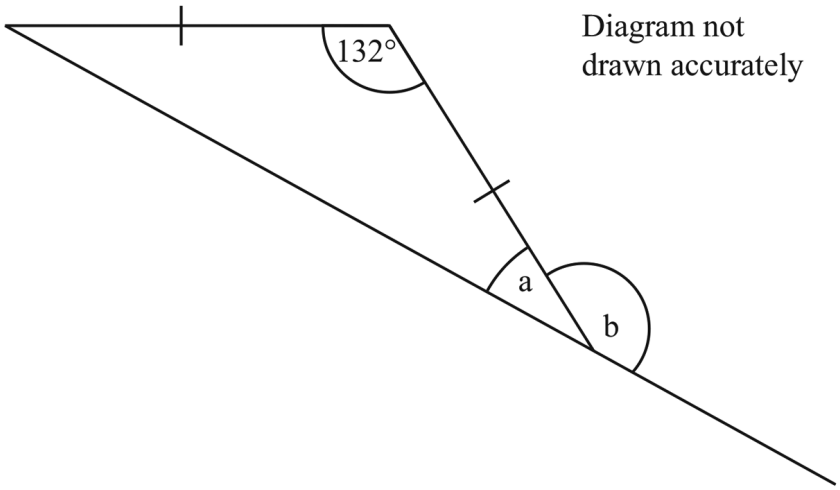


Diagram not drawn accurately

Find the size of

(a) angle a

Answer a = _____° [2]

(b) angle b

Answer b = _____° [1]

Q9

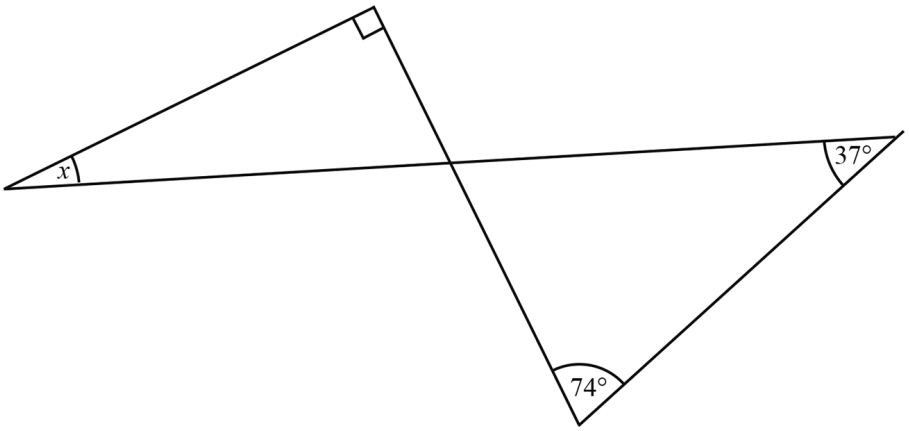


diagram not drawn accurately

Calculate the size of the angle marked x.

Answer _____ ° [3]

Q10 In the diagram lines AB and CD are parallel.

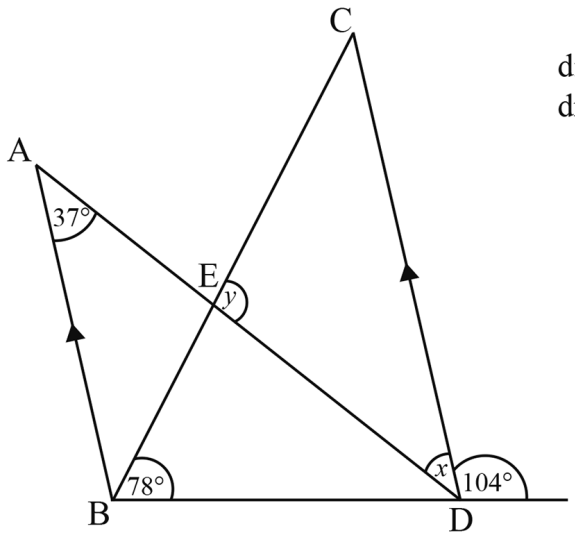


diagram not drawn accurately

(a) Find the size of the angle x.

Answer _____ ° [1]

(b) Calculate the size of the angle y.

Answer _____ ° [2]

Q11

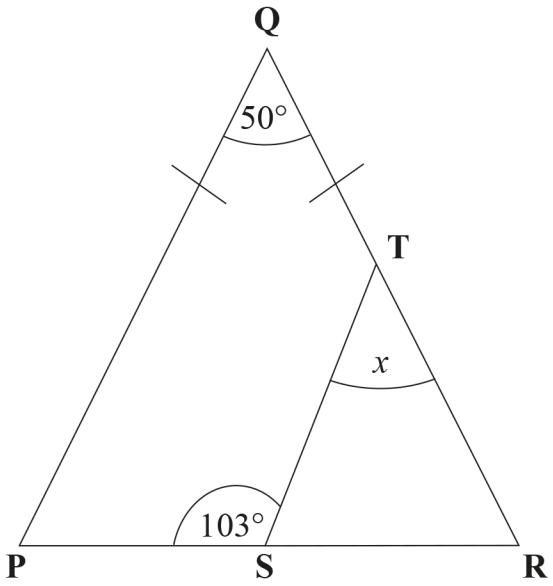


diagram
not drawn
accurately

Triangle PQR is isosceles with PQ = QR.

(a) Calculate the size of angle x

Answer _____° [3]

(b) Hence decide if the lines PQ and ST are parallel.

_____ because _____

_____ [2]

Q12

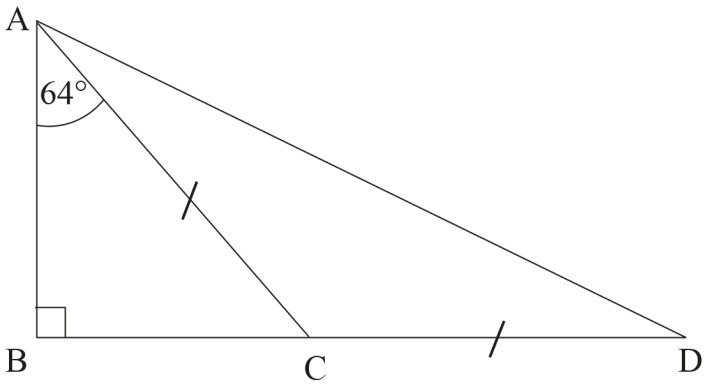


diagram not drawn accurately

ABC is a right-angled triangle.
ACD is an isosceles triangle.
BCD is a straight line.

Calculate the size of

(a) angle ACB,

Answer _____ ° [2]

(b) angle ADC.

Answer _____ ° [3]

Q13

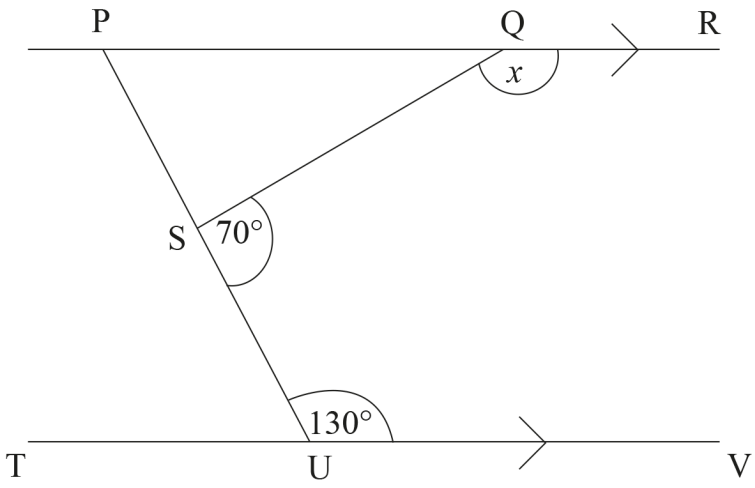


diagram
not drawn
accurately

PR and TV are parallel lines.

Calculate the size of angle x.

Answer _____° [3]

Q14

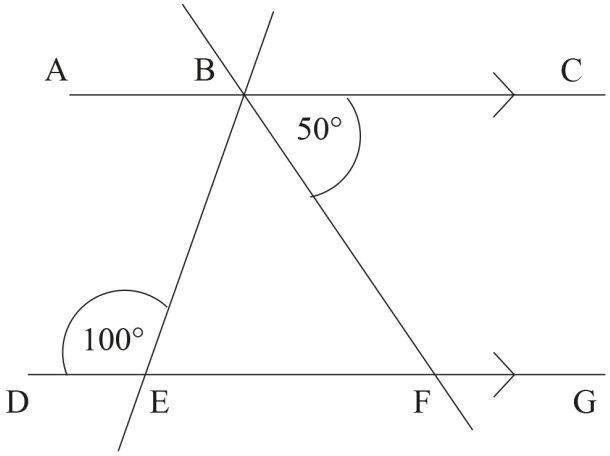


diagram not drawn accurately

AC and DG are parallel lines.

Angle CBF = 50° and angle BED = 100°

What type of triangle is BEF?

Give a reason for each angle found.

Answer _____ [3]

1.

(a)	$360 - (110 + 130 + 52)$	MA1
	68	MA1
	112	A1
(b)	$(180 - 32) \div 2$	MA1
	74	A1

2.

$180 - 108 = 72$	MA1
$180 - (72 \times 2)$	MA1
36	A1

3.

$360 - (66 + 143 + 98)$ or $360 - 307$	MA1
53	A1
127	MA1

4.

$(180 - 64) \div 2$			M1
58			A1
122			MA1

5.

$360 - (122 + 141 + 73)$ or $360 - 336$			M1
24			A1

6.

$4x - 23 = 2x + 35$	**or**	$3x + 4x - 23 + 3x + 2x + 35 = 360$	M1
$2x = 58$	**or**	$12x = 348$	MA1
$x = 29$		$x = 29$	MA1

or

$4x - 23 + 3x = 180$	**or**	$2x + 35 + 3x = 180$	M1
$7x = 203$	**or**	$5x = 145$	MA1
$x = 29$		$x = 29$	MA1

7.

(a)	78°	A1
(b)	87°	A1

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8. **(a)** $180 - 132 = 48$ M1

$48 \div 2$

24 A1

(b) $180 - (a) = 156$ MA1

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9. $180 - (74 + 37) = 69$ MA1

vertically opposite angle = 69 A1

$x = 180 - (90 + 69) = 21$ MA1

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10. **(a)** 37° A1

(b) ABE = 104 – 78 = 26° MA1

AEB = 180 – (26 + 37) = 117° = y MA1

or

EDB = 180 – (104 + 37) = 39°

BED = 180 – (78 + 39) = 63° MA1

y = 180 – 63 = 117° MA1

or

BDC = 76°

BCD = 180 – (76 + 78) = 26° MA1

y = 180 – (26 + 37) = 117° MA1

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11. **(a)** QPR = QRS = 65° (mark gained for angle QRS as 65 in diagram) MA1
TSR = 77° (may be marked in diagram) MA1
x = 180 – (77 + 65) = 38° (3 marks for correct ans) MA1

(b) No because 50 + 142 ≠ 180°
or because 65 + 103 ≠ 180°
or because the angles between the two lines do not add up to 180 so not parallel
or because 38 ≠ 50, corresponding.
Allow A1 for numerical error but correct argument A2

12.

(a) 180 – 90 – 64 **or** 90 – 64 M1

= 26 A1

(b) 180 – 26 = 154 MA1

$\frac{180 - 154}{2}$ M1

= 13 A1

13.

QSP = 110 MA1

TUP = 50 so QPU = 50 (alternate) MA1

PQS = 180 – (50 + 110) = 20, x = 180 – 20 = 160 MA1

14.

angle BFE = 50, alternate MA1

angle BEF = 80, angles on straight line add to 180° MA1

angle EBF = 50, angle sum of triangle, so triangle is isosceles MA1
