M1.

acute-angled and isosceles

B1

[1]

M2.

Sketch of possible pentagon with exactly one line of symmetry, integer sides labelled, perimeter ie 15 cm
1 × 7 cm and 4 × 2 cm
1 × 7 cm and 2 × 3 cm and 2 × 1 cm
1 × 5 cm and 2 × 4 cm and 2 × 1 cm
1 × 5 cm and 2 × 3 cm and 2 × 2 cm
1 × 3 cm and 2 × 5 cm and 2 × 1 cm
1 × 3 cm and 2 × 4 cm and 2 × 2 cm
3 × 1 cm and 2 × 6 cm
1 × 1 cm and 2 × 5 cm and 2 × 2 cm
1 × 1 cm and 2 × 4 cm and 2 × 3 cm
5 × 3 cm (but sketch clearly only has 1 line of symmetry)

B1
regular pentagon with 5 × 3 cm labelled
or
(impossible) pentagon with sides labelled
eg 1 × 11 cm and 4 × 1 cm
or
pentagon with one line of symmetry and non-integer sides labelled, perimeter 15
Units not needed

B2

[2]

M3.

(a) Never true

B1

(b) Always true

B1

[2]

M4.(a) 30

B1

(b) Hexagon

B1

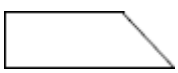
[2]

M5.

(a)

B1

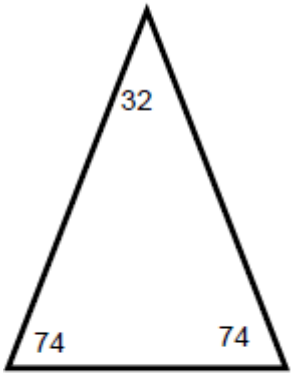
(b)

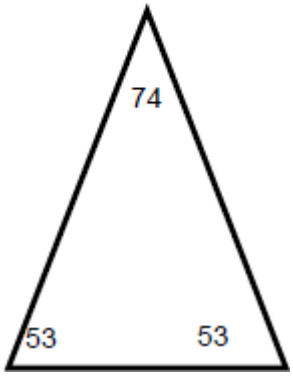


B1

[2]

M6.





B2 for 1 correct triangle.

B2 for correct angles in both triangles but incorrectly positioned.

*B1 for a triangle with 74° and 2 other equal angles not totalling 180° **or** for a triangle with 2 × 74° and 1 other angle not totalling 180°. NB 74° must be correctly positioned.*

B3

[3]

M7.

Rhombus	✔	✘	✔	✘	✔

B1 for 4 correct, 1 wrong

B0 for 2 or more wrong

B2

Kite	✔	✔	✘	✔	✘

B1 for 4 correct, 1 wrong

B0 for 2 or more wrong

B2

[4]

M8.

x coordinate = 2

(2, 4) marked on diagram.

B1

Base = 7 − − 3 (= 10)

10 marked on diagram as base or stated as base in script.

*This mark is for showing that the base is 10 and **not** for 7 − − 3 = 10 if used to find the x coordinate.*

B1

Height = 20 ÷ their 10 × 2 (= 4)

4 marked on diagram as height

***NB** height shown or stated as 4 is 2 marks (assume base of 10)*

M1

y coordinate = 8

ft their height if M awarded and no other errors.

Accept

***NB** 8 stated as y coordinate is B1, M1, A1 (ie last 3 marks) unless contradictory or wrong working.*

A1ft

[4]

M9.

(a) Any correct equation

e.g.1 $2x + x + 96 + 96 = 360$

e.g.2 $2x + x + 96 + 96 = 360$

e.g.3 $x + \frac{1}{2}x + 96 = 180$

B1

Correct rearrangement of their equation to the form $ax = b$
or
$\frac{360-96-96}{3}$

3x = 168 or $\frac{3}{2}$ *x = 84 oe if B1*

Follow through their equation of form

$px + q = r$

a, b, p, q *and* r *all non-zero*

M1

56

ft their $ax = b$ *if M1 gained*

A1ft

(b) Fully correct explanation

e.g.1 Labels large rectangle a and b
or labels diagonals of kite a and b
Area rectangle = $a \times b$
Area kite = $\frac{1}{2}$ × product of diagonals

$= \frac{1}{2} \times a \times b$

e.g.2 Labels each part of top edge with w and the side parts with x and y

Area rectangle = 2w(x + y)

$= 2wx + 2wy$

Area kite = $\frac{1}{2}\ wx + \frac{1}{2}\ wx + \frac{1}{2}\ wy$

$+ \frac{1}{2}\ wy$

$= wx + wy$

e.g.3 Draws both diagonals of kite and indicates there are 4 pairs of equal areas

e.g.4 Draws at least one diagonal of the kite and states that the area of a triangle is half the area of a rectangle

e.g.5 Uses compatible numbers and correctly works out areas of kite and rectangle

For example
Labels each part of top edge with 4 and the side parts with 3 and 6

Rectangle area = 8 × 9 = 72

Kite area = 0.5 × 8 × 3 + 0.5 × 8 × 6

= 12 + 24 = 36

B1 Partially correct statement or correct step towards correct explanation

e.g.1 Labels large rectangle a *and* b *or labels diagonals of kite* a *and* b

Area rectangle = $a \times b$

Area kite = $\frac{1}{2} \times a \times b$

e.g.2 Labels each part of top edge with w and the side parts with x and y

Area rectangle = 2w(x + y)

Area kite = $\frac{1}{2}\ wx + \frac{1}{2}\ wx + \frac{1}{2}\ wy + \frac{1}{2}\ wy$

e.g.3 Draws both diagonals of kite

e.g.4 Uses compatible numbers and works out areas of kite and rectangle with correct method but makes arithmetic error(s)

For example

Labels each part of top edge with 4 and the side parts with 3 and 6

Rectangle area = 8 × 9 = 82

Kite area = 0.5 × 8 × 3 + 0.5 × 8 × 6

= 12 + 24 = 36

B2

[5]

M10. T, T, F, T

B2 for 3 correct

B1 for 2 correct

B3

[3]

M11.(a) F

B1

Square

B1

(b) 9

B1

cm^2

B1

[4]

M12. Kite either horizontal or vertical with long diagonal 6 cm and short diagonal 4 cm

B1 for any kite

Condone a square using the given side or an arrowhead for B1

B2

[2]

M13.360 ÷ 4 or 90 seen

Right angle symbol may be on diagram
May be implied from symmetry line and 45

M1

360 − 90 − 36 (= 234)

If symmetry used 90 ÷ 2 or 45 and 36 ÷ 2 or 18 seen or 63 seen

If isosceles triangles used (180 − 90) ÷ 2 or 45 and (180 − 36) ÷ 2 or 72 seen

M1dep

their 234 ÷ 2
or 180 − 45 − 18
or 45 + 72

Dependent on 1st two Method marks

M1dep

117

A1

Alternative Method

360 × 4 − 360

or 6 × 180

or 1080

oe

M1

their 1080 − 36 × 4 (= 936)

M1dep

their 936 ÷ 8

M1dep

117

A1

[4]

M14.

(a) Correct sketch.

Do not accept rectangle

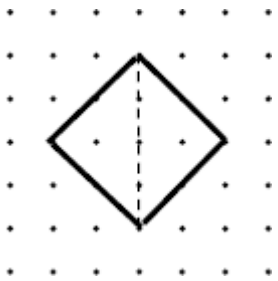
B1

(b) Correct sketch.

Do not accept rhombus

B1

(c)



Square must have line as diagonal unless they have made a mistake and started over.

B1

[3]

M15.

(a) A and F

B1

(b) C and D

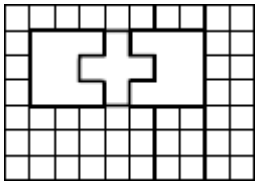
B1

(c) E and F

B1 for either

B2

(d)



Or any that work

All 3 pieces shown and shapes correct sizes

B1

[5]

M16.

(a) 180 − 75 (=105)

oe

M1

3*a* = their 105

Their 105 ÷ 3

M1dep

35

A1

(b) (180 − 40) ÷ 2

Allow invisible brackets

M1

70

A1

[5]

M17.

180 − (360 ÷ 8)

Check diagram for external angle marked as 45. If so M1

M1

135

Check diagram for internal angle marked as 135. If so M1, A1

A1

67.5

A1

Alternative

6 × 180 (= 1080)

M1

1080 ÷ 8 = 135

A1

67.5

A1

[3]