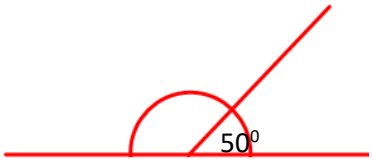
# Thursday 16th April - Mild - Angles on a straight line

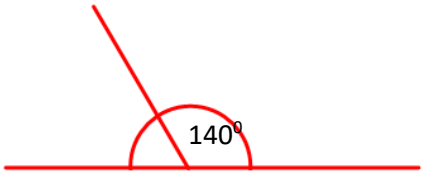
## Find the missing angle in each of these diagrams

1)




130°

2)

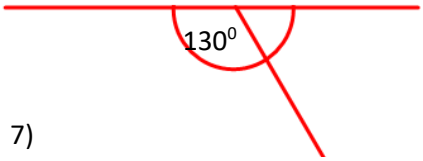



40°

3)

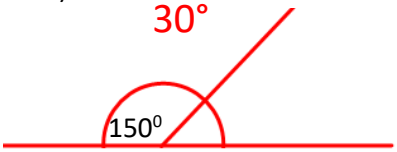

150°

4)



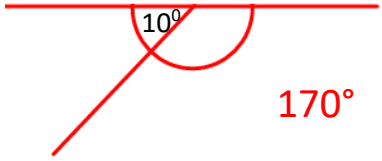

50°

5)



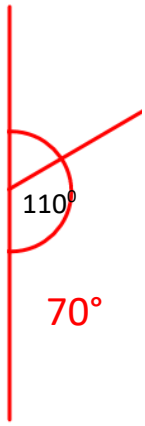

30°

6)



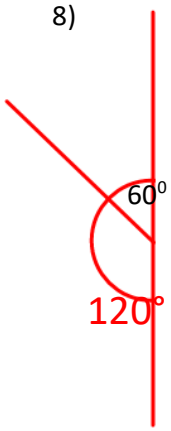

170°

7)



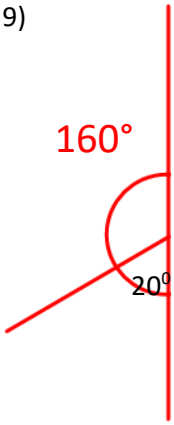

70°

8)



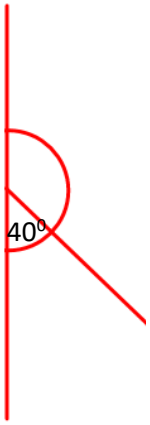

120°

9)



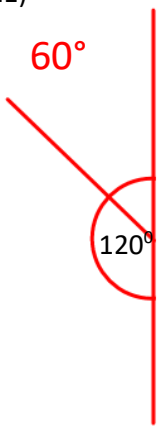

160°

10)



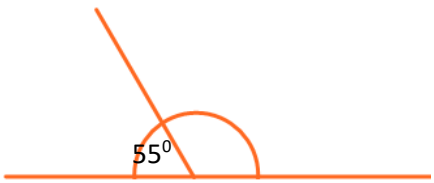

140°

11)



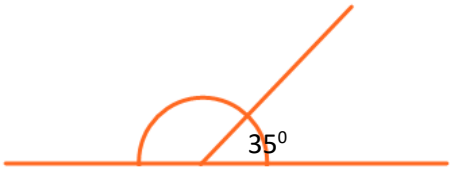

60°

12)



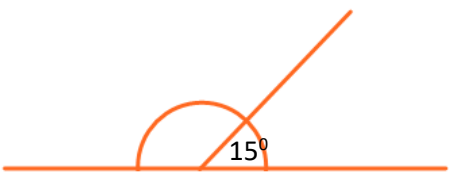

125°

13)



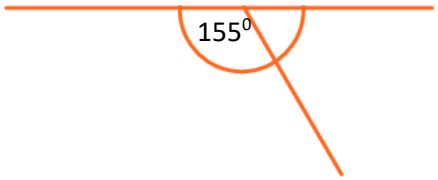

145°

14)



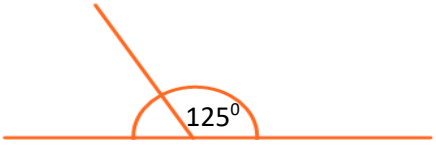

165°

15)



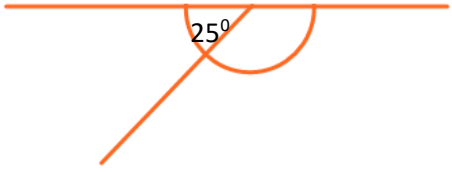

**25°**

16)




**55°**

17)

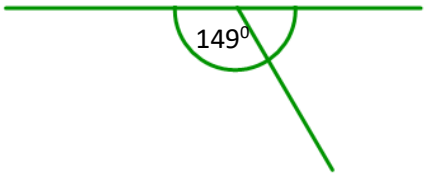



155°

# Thursday 16th April - Spicy - Angles on a straight line

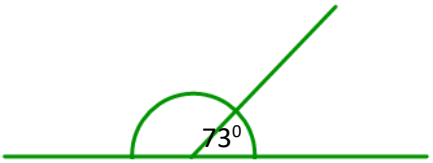
## Find the missing angle in each of these diagrams

1)



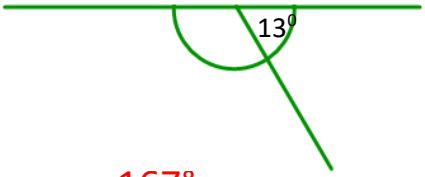

31°

2)



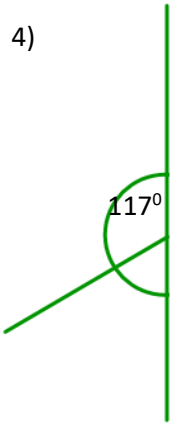

107°

3)



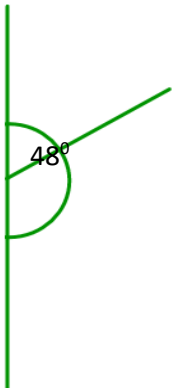

167°

4)



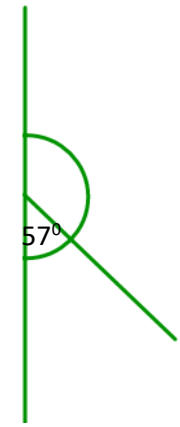

63°

5)




132°

6)

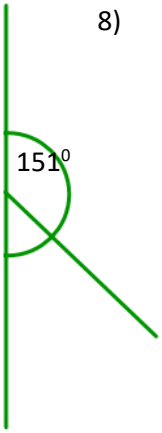



103°

7)

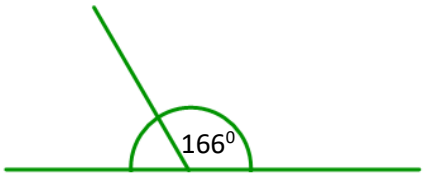

7°

8)

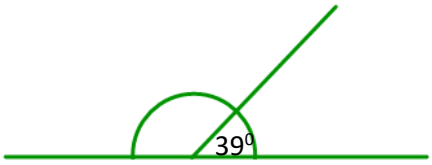



29°

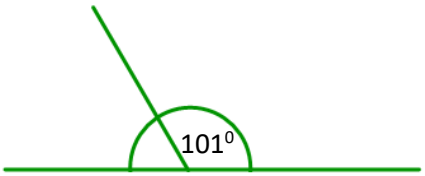
9)



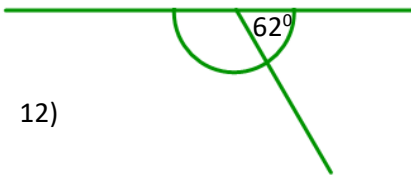

10)



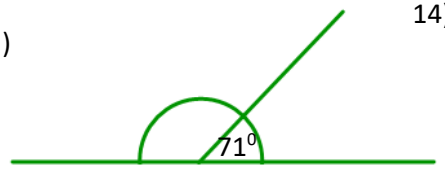

11)



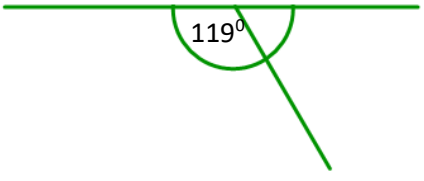

12)




13)




14)

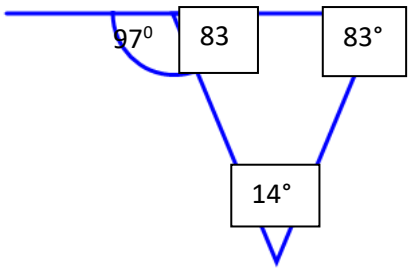



9) 14°
10) 141°
11) 79°
12) 118°
13) 109°
14) 61°

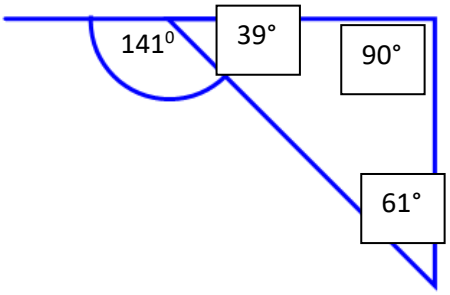
# Thursday 16th April - HOT Angles on a straight line and triangle

**Find EACH of the missing angles. Use what you know of angles in a triangle AND angles on a straight line to calculate ALL missing angles. The diagrams may not be to scale.**

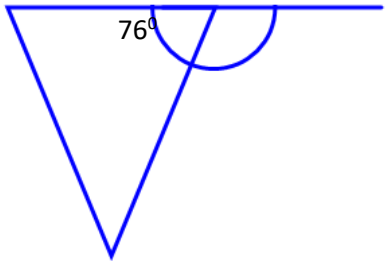
1)



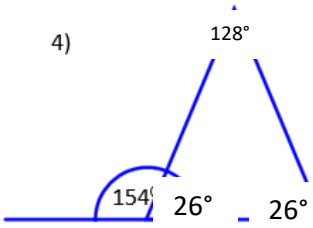

2)



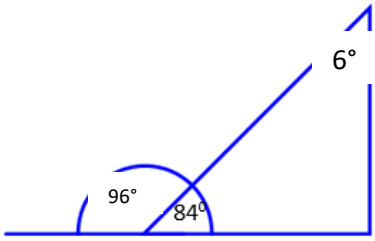

3)

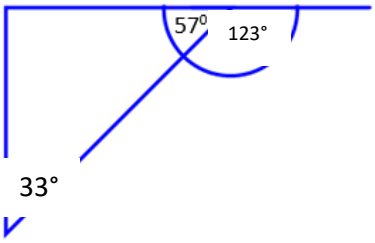



4)

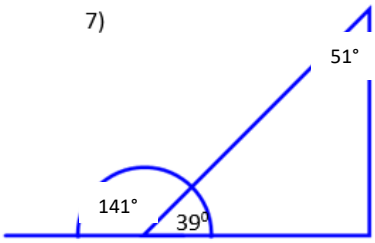



6)

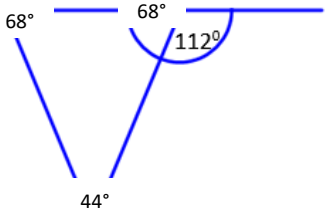


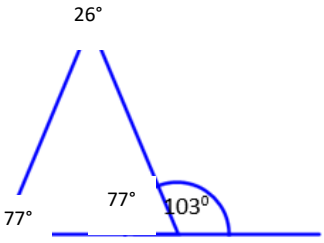

7)




8)




9)

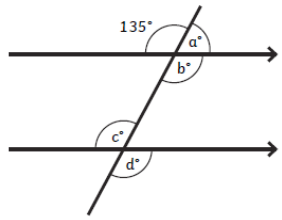


Thursday 16th April - Extra Hot:

Calculate the missing angles using your knowledge of straight line and vertically opposite angles:

'Vertically opposite angles' means that the angles opposite each other when two lines cross are always equal.

1.



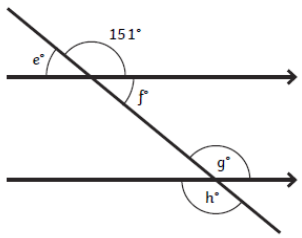

a = _____ °

b = _____ °

c = _____ °

d = _____ °

2.



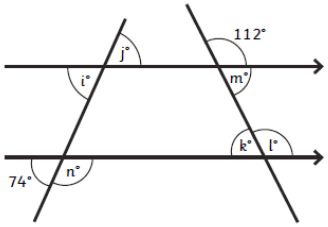

e = _____ °

f = _____ °

g = _____ °

h = _____ °

3.




i = _____ °

j = _____ °

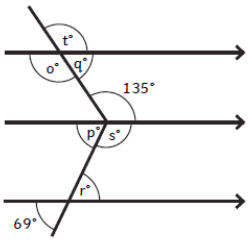
k = _____ °

l = _____ °

m= _____ °

n = _____ °

4.




o = _____ °

p = _____ °

q = _____ °

r = _____ °

s= _____ °

t = _____ °

Answers:

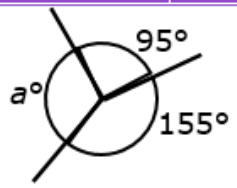
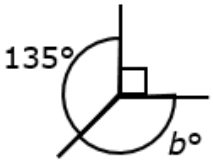
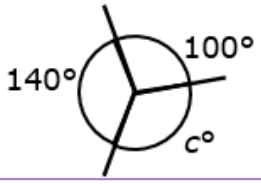
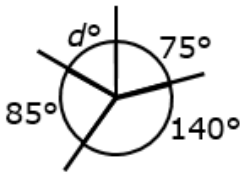
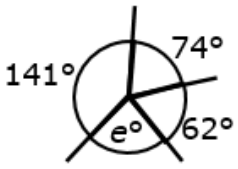
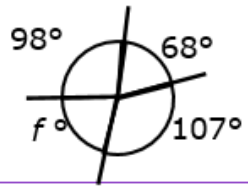
1a) 45° 1b) 135° 1c) 135° 1d) 135°

2e) 29° 2f) 29° 2g) 151° 2h) 151°

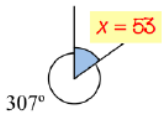
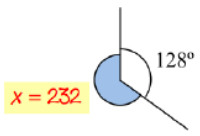
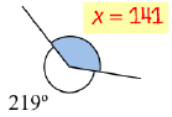
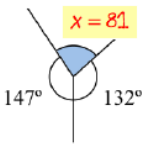
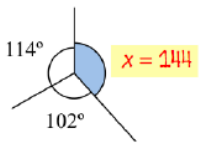
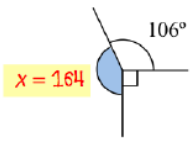
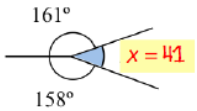
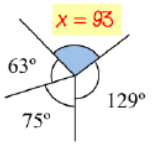
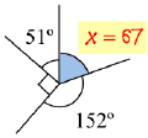
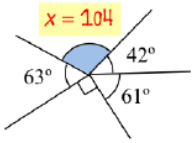
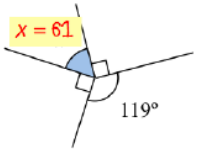
3i) 74° 3j) 74° 3k) 68° 3l) 112° 3m) 68° 3n) 106°

4o) 135° 4p) 69° 4q) 45° 4r) 69° 4s) 111° 4t) 135°

Friday 17th April - Mild - Angles around a point

| Question 1: | Find the missing angles and show your working. | |
|---|---|---|
|  |  |  |
| $95 + 155 + a = 360$<br>$250 + a = 360$<br>$360 - 250 = a$ | $135 + 90 + b = 360$<br>$225 + b = 360$<br>$360 - 225 = b$ | $140 + 100 + c = 360$<br>$240 + c = 360$<br>$360 - 240 = c$ |
| a° = 110° | b° = 135° | c° = 120° |
| **Question 2:** | **Find the missing angles and show your working.** | |
|  |  |  |
| $d + 75 + 140 + 85 = 360$<br>$d + 300 = 360$<br>$360 - 300 = d$ | $141 + 74 + 62 + e = 360$<br>$277 + e = 360$<br>$360 - 277 = e$ | $98 + 68 + 107 + f = 360$<br>$273 + f = 360$<br>$360 - 273 = f$ |
| d° = 60° | e° = 83° | f° = 87° |

Friday 17th April – Spicy – Calculate the missing angles around a point.

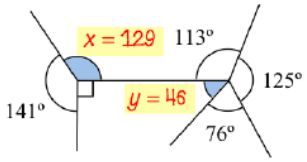
| | | | |
|---|---|---|---|
| **A1** Find the value $x$<br>  | **A2** Find the value $x$<br>  | **A3** Find the value $x$<br>  | **A4** Find the value $x$<br>  |
| **B1** Find the value $x$<br>  | **B2** Find the value $x$<br>  | **B3** Find the value $x$<br>  | **B4** Find the value $x$<br>  |
| **C1** Find the value of $x$<br>  | **C2** Find the value of $x$<br>  | **C3** Find the value of $x$<br>  | **C4** Find the value of $x$<br>  |

## Friday 17th April - Hot

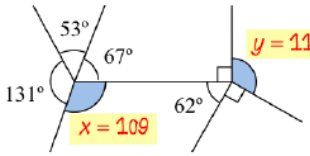
**A1** Three angles measure 97°, 145° and 118°.
Do these three angles fit exactly around a point?
Explain your answer.

Yes.
Because their total is 360°.

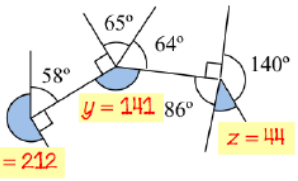
**A2** Find the values of $x$ and $y$



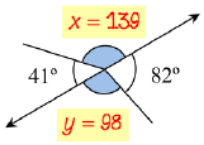

**A3** Find the values of $x$ and $y$



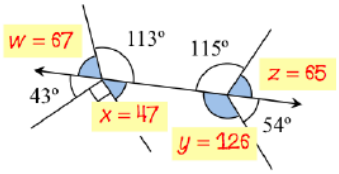

**A4** Find the values of $x$, $y$ and $z$




**B1** Find the values of $x$ and $y$



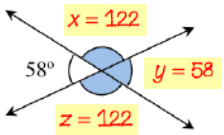

**B2** Find the values of $w$, $x$, $y$ and $z$



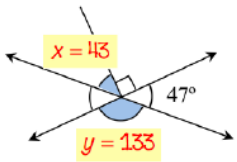

**B3** Five angles measure 78°, 95°, 113°, 162° and 187°.
Which of them can be put together to fit exactly around a point?

78°, 95° and 187°

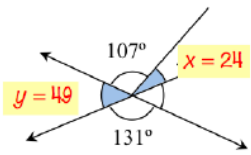
**B4** Find the values of $x$, $y$ and $z$



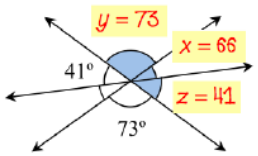

**C1** Find the values of $x$ and $y$



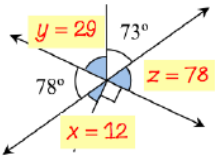

**C2** Find the values of $x$ and $y$




**C3** Find the values of $x$, $y$ and $z$

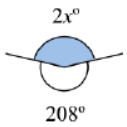



**C4** Find the values of $x$, $y$ and $z$



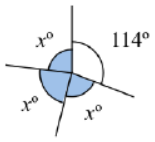

## Friday 17th April - Extra Hot:

**A1** Find the value of $x$



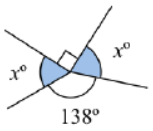

2x = 152 x = 76

**A2** Find the value of $x$




3x = 246 x = 82

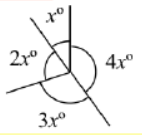
**A3** Find the value of $x$




2x = 132 x = 66

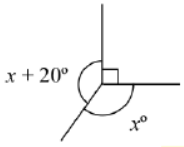
**A4** Find the size of each of the four angles

10x = 360 ⇒ x = 36°




36°, 72°, 108° and 144°

**B1** Find the value of $x$



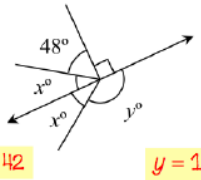

2x + 20 = 270 x = 125

**B2** Three angles fit exactly around a point.

x + (x + 20) + (2x + 40) = 360
4x + 60 = 360
x = 75

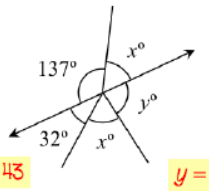
75°, 95° and 190°

**B3** Find the values of $x$ and $y$




x = 42 y = 138

**B4** Find the values of $x$ and $y$



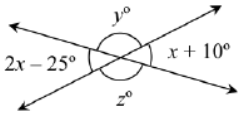

x = 43 y = 105

**C1** Three angles fit exactly around a point.

If smallest angles are equal:
x + x + (x + 30) = 360
3x + 30 = 360
x = 110
⇒ x + 30 = 140°

**C2** Find the values of $x$, $y$ and $z$

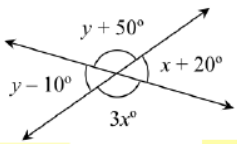
2x − 25 = x + 10




x = 35 y = z = 135

**C3** Find the values of $x$ and $y$

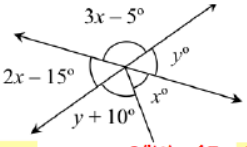
(y − 10) + (y + 50) = 180




y = 70 x = 40

**C4** Find the values of $x$, $y$ and $z$

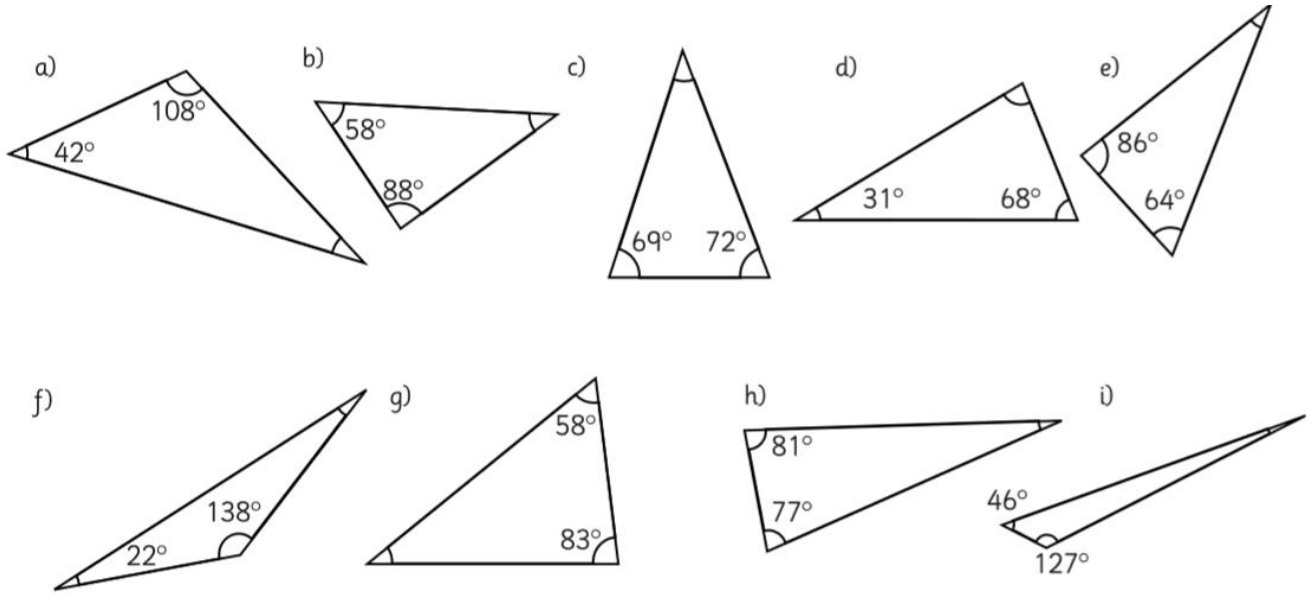
(2x − 15) + (3x − 5) = 180




x = 40 y = 2(40) − 15 = 65

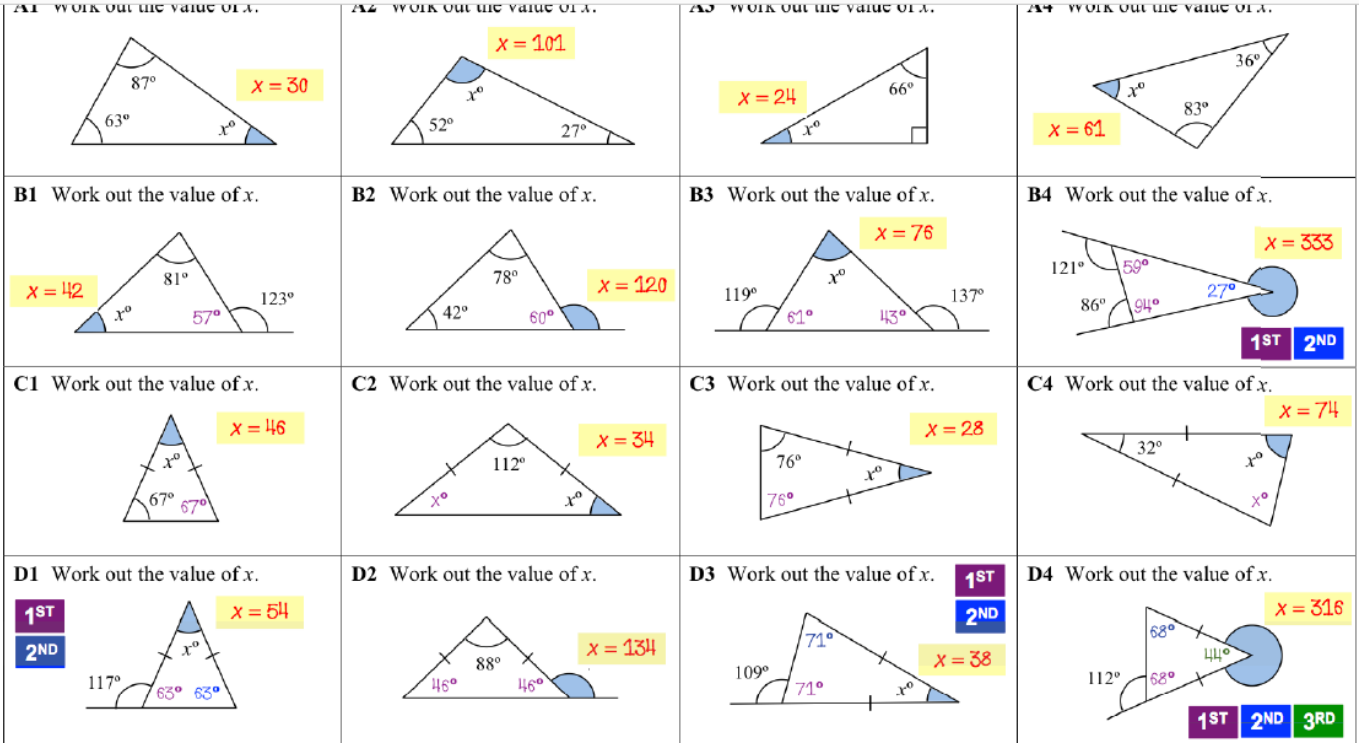
Monday 20th April – Mild – angles in a triangle:

Use your knowledge of angles in a triangle to work out what the missing angles would be. Remember, angles in a triangle add up to 180°.



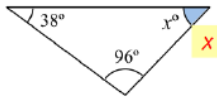

a) 30° b) 34° c) 39° d) 81° e) 30° f) 20° g) 39° h) 22° i) 7°

Monday 20th April – Spicy – angles in a triangle:



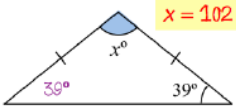
## Monday 20th April – Hot – angles in a triangle

**A1** Work out the value of $x$.



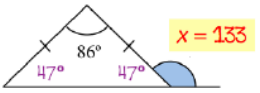

$x = 46$

**A2** Work out the value of $x$.



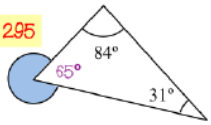

$x = 102$

**A3** Work out the value of $x$.



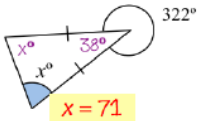

$x = 133$

**A4** Work out the value of $x$.



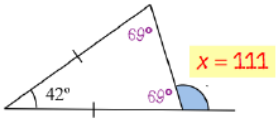

$x = 295$

**B1** Work out the value of $x$.



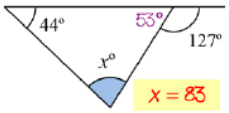

$x = 71$

**B2** Work out the value of $x$.




$x = 111$

**B3** Work out the value of $x$.

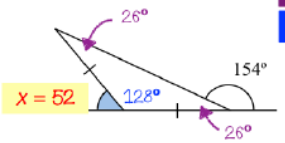



$x = 83$

**B4** Work out the value of $x$.

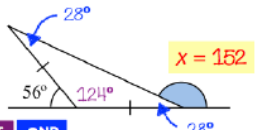

$x = 60$

**C1** Work out the value of $x$. 1ST 2ND




$x = 52$

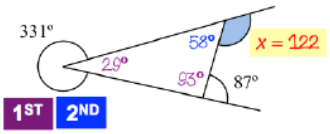
**C2** Work out the value of $x$




1ST 2ND

$x = 152$

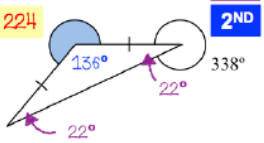
**C3** Work out the value of $x$.




1ST 2ND

$x = 122$

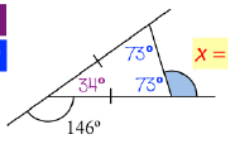
**C4** Work out the value of $x$. 1ST 2ND




$x = 224$

**D1** Work out the value of $x$.

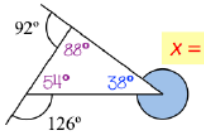
1ST 2ND




$x = 107$

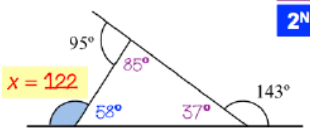
**D2** Work out the value of $x$.

1ST 2ND



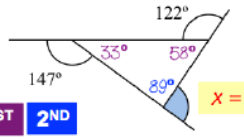

$x = 322$

**D3** Work out the value of $x$. 1ST 2ND




$x = 122$

**D4** Work out the value of $x$.

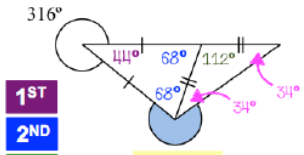



1ST 2ND

$x = 91$

## Monday 20th April – Extra Hot – angles in a triangle

**A1** Find the value of $x$

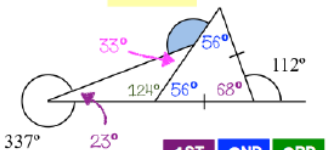



1ST 2ND 3RD

$x = 102$

**A2** Find the value of $x$

$x = 147$

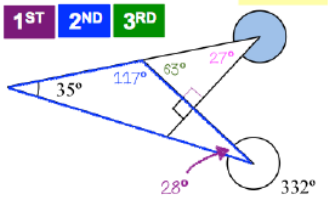



1ST 2ND 3RD

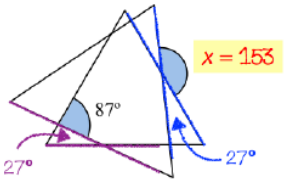
**A3** Find the value of $x$

$x = 333$

1ST 2ND 3RD

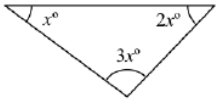



**A4** The triangles are equilateral. Find the value of $x$



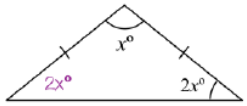

$x = 153$

**B1** Find the value of $x$



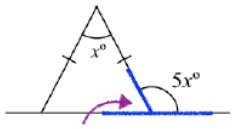

$6x = 180, x = 30$

**B2** Find the value of $x$




$5x = 180, x = 36$

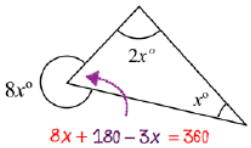
**B3**




$\frac{180 - x}{2} + 5x = 180$

$x = 20$

**B4**




$8x + 180 - 3x = 360$

$x = 36$

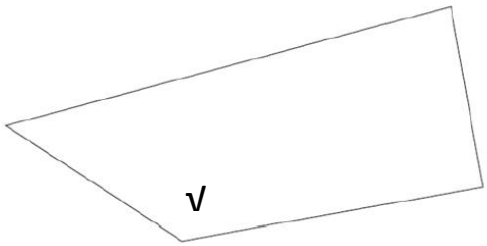
Tuesday 21st April – see separate PDF files on class 6 section of school website.

Answers – Tough:

1) x = 90° y = 270°

2) Ask a grown up to check your measuring for you.

3)




4)

| | has a **right** angle | has an **obtuse** angle | has 3 **acute** angles |
|---|---|---|---|
| is isosceles | **A** | | B |
| is **not** isosceles | D | C | |

5)

For each statement, put a tick (✓) if it is true.
Put a cross (✗) if it is not true.

| | |
|---|---|
| The shape is a quadrilateral. | √ |
| The shape has 2 lines of symmetry. | |
| The shape is a parallelogram. | |
| The shape has one right angle. | √ |

6) x = 270°

7) approximately 80°

8)

Complete the sentences below.

One has been done for you.

| | |
|---|---|
| ..... A ..... | is a kite |
| ..... F ..... | is not a quadrilateral |
| ..... E ..... | has only 2 right angles |
| ..... B ..... | has 2 acute angles |

9) A and D

10) C and D A and D

<u>Tougher</u>

1) 107

2) x = 55 y = 145

3)

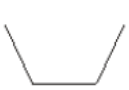
| | |
|---|---|
| ☑ | |
| ☒ | |
| ☒ | |
| ☑ | |

4) 18°

5) 93° to 97° inclusive

6) x = 35°

An explanation (or diagram) which recognises that the sum of two obtuse angles would be greater than 180 degrees, eg:

- 'An obtuse angle is greater than 90 degrees and the angles of a triangle add up to 180 degrees'
- 'Two obtuse angles add up to more than 180'
- '180 degrees is less than two obtuse angles'
- 'It must have at least two acute angles'
- 'The shape would need more than 3 sides to join up'
- 

***Do not** accept answers that refer only to the properties of obtuse angles **OR** to the angles of a triangle, eg:*

- *'The angles of a triangle add up to 180 degrees'*
- *'Obtuse angles are greater than 90 degrees'.*

***Do not** accept vague or incomplete explanations, eg:*

- *'A triangle cannot have two obtuse angles'*
- *'Obtuse angles would be too big'*
- *'You can only have acute angles'.*

7)

8a) 126mm to 128mm inclusive

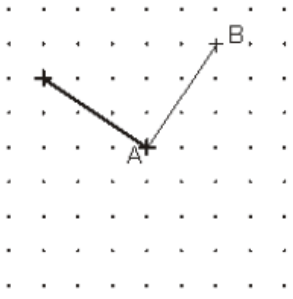
8b) 21° to 23° inclusive

9. x = 108° y = 54°

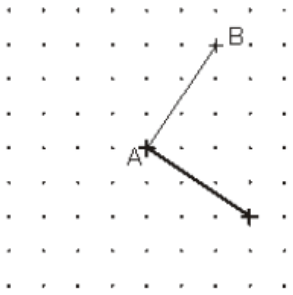
10) 170°

11) 25

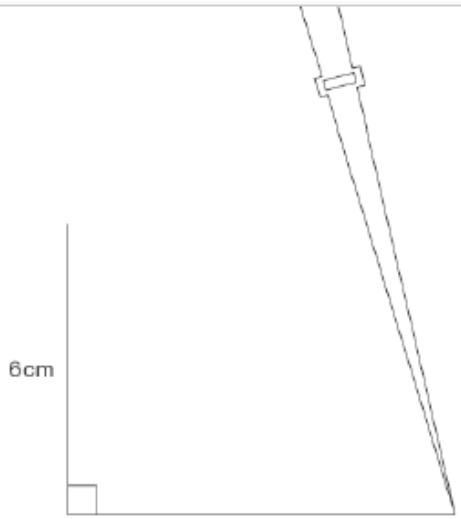
**M12.** Line drawn from A to one of the two dots marked as shown:




**OR**




*Accept slight inaccuracies in drawing*




Award **TWO** marks for a quadrilateral drawn with an angle in the range 73° to 77° inclusive **AND** length of sloping line in the range 9.1cm to 9.3cm inclusive (ie upper vertex of quadrilateral within inner box on diagram).

If the answer is incorrect, award **ONE** mark for:

- a completed quadrilateral drawn with an angle in the range 73° to 77° inclusive

OR

- a completed quadrilateral drawn with an angle in the range 72° to 78° inclusive **AND** length of sloping line in the range 9.0cm to 9.4cm inclusive.

*Accept drawings where any side has been extended past a vertex.*

*Accept drawings which do not use the given 8cm base line, provided they have used a line with a length in the range 7.8cm to 8.2cm inclusive.*

*Accept for **ONE** mark drawings not using the given 8cm base line which have a base line outside the range 7.8cm to 8.2cm, provided they have an angle in the range 73° to 77° inclusive **AND** a sloping line in the range 9.1cm to 9.3cm inclusive.*

*Accept for **ONE** mark drawings of incomplete quadrilaterals, provided they have an angle in the range 73° to 77° inclusive **AND** a sloping line in the range 9.1cm to 9.3cm inclusive.*

13)

---

**M14.** (a) An explanation that shows that one quarter of 240 is more than one half of 80, eg:

- 'Because only 40 are walking to Foxwood and 60 are walking to Midtown'
- 'Half of the people who walk is 40 and a quarter of the people who walk is 60'

*No mark is awarded for circling 'No' alone.*

*Do not accept vague or incomplete explanations, eg:*

- *'Because at Foxwood it's a half and at Midtown it's a quarter'*
- *'Because there are 80 children at Foxwood and 240 children at Midtown'*

*If 'Yes' is circled but a correct unambiguous explanation is given then award the mark.*

1
U1

(b) Award **TWO** marks for the correct answer of 50

If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, eg

240 ÷ 3 = 80

240 – 80 – 60 = 100

100 ÷ 2

*Answer need not be obtained for the award of **ONE** mark.*

Up to 2

[3]

**M15.** (a) AB (BC) CD (DA)

*Accept alternative unambiguous indications of the correct lines.*

1

(b) (AB) BC (CD) DA

*Accept alternative unambiguous indications of the correct lines.*

1

[2]

**M16.** 17

*! Answer written on diagram*
*Accept providing there is no ambiguity*

2

*or*

73° seen (*one of the other angles in the isosceles triangle*)

---

OR

Shows or implies a complete correct method, eg:

- 180 – 34 = 144 *(error)*

  144 ÷ 2 = 72

  90 – 72 = 28 *(error)*

1

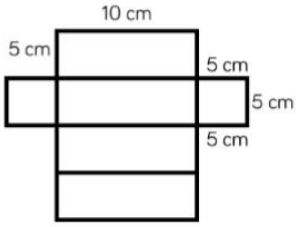
**[2]**

Wednesday 22nd April – Please complete the questions below.

- What three-dimensional shape can be made from these nets?

Identify and describe the faces of each shape.

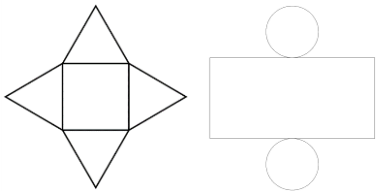
- Accurately draw this net. Cut, fold and stick to create a cuboid.



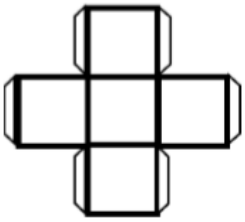

- Draw possible nets of these three-dimensional shapes.


a) Triangular prism.
3 rectangles and 2 equilateral triangles
b) Square-based pyramid
4 equilateral triangles and one square
c) Cube
6 squares

Possible nets:




Dora thinks that this net will fold to create a cube.

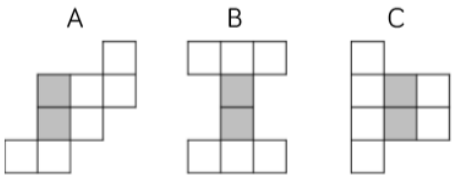


Do you agree with Dora?
Explain your answer.

Dora is incorrect because a cube would have 6 faces, this net only has 5.

Here is an open box.

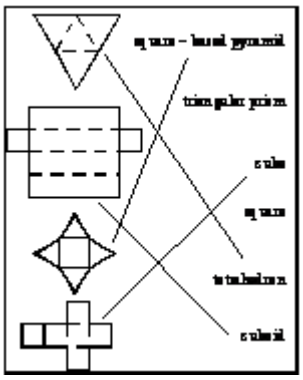
Which of the nets will fold together to make the box?
The grey squares show the base.




B and C

How do you know?

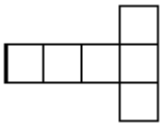
**M1.** 1 mark for drawing all arrows as shown.



*Do not award the mark if the child draws additional lines unless he or she clearly indicates which three are correct.*

**[1]**

**M2.**

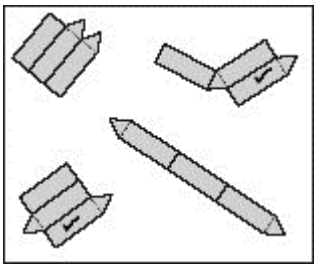


*All 5 fold lines correctly drawn for 1 mark.*

*Allow plus or minus 2 millimetres.*

**[1]**

**M3.** Two nets ticked as shown:

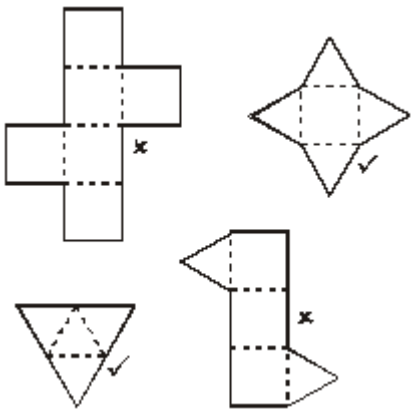


***Both** nets must be ticked for the award of the mark.*

*Accept any other clear way of indicating the two correct nets, such as circling.*

**[1]**

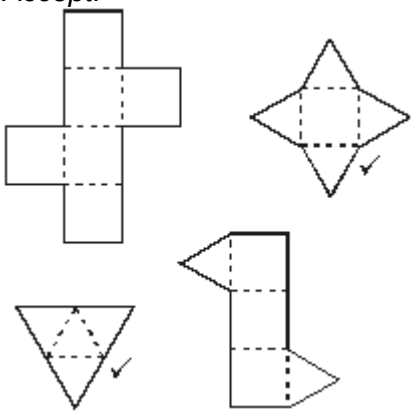
**M4.** Nets ticked and crossed as shown:



*Accept alternative unambiguous indications of the correct nets, eg*

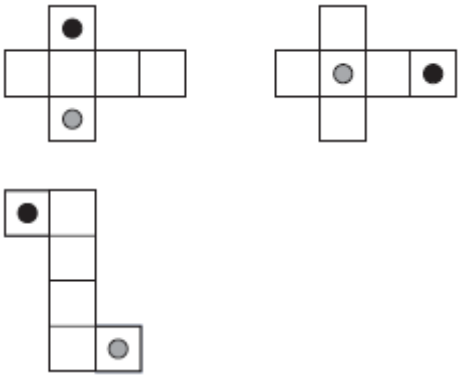
*nets circled or crossed out.*

*Accept:*



**[1]**

**M5.**Award **TWO** marks for three diagrams completed as shown:



*Accept alternative unambiguous indications.*

If the answer is incorrect, award **ONE** mark for two diagrams correct.

**Up to 2**
**U1**

**[2]**

Thursday 23rd April - Spicy

**1.**

Award **TWO** marks for all four boxes correct. Award **ONE** mark if only three boxes correct.

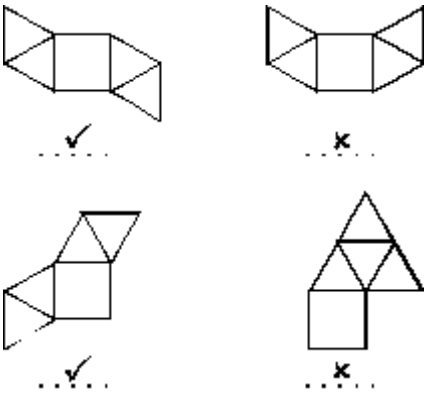
*Each box must have a tick or a cross.*

*A blank box counts as incorrect, unless answer is indicated unambiguously elsewhere on the page.*

**Up to 2**

**[2]**

**M2.** Award **TWO** marks for a correct answer as shown below:



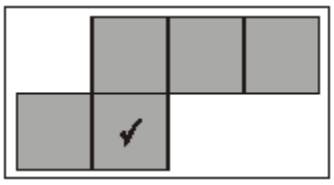
If the answer is incorrect, award **ONE** mark for three boxes correctly ticked or crossed **OR** two boxes correctly ticked and the other two boxes left blank.

*Accept alternative, unambiguous indications, eg 'Y' or 'N'.*

**Up to 2**

**[2]**

**M3.** Diagram marked as shown:

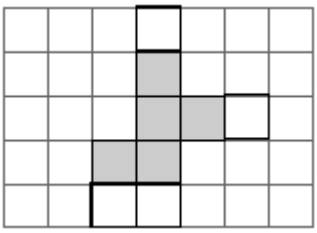


*Accept alternative, unambiguous indications, such as a cross in the square shown above.*

**U1**

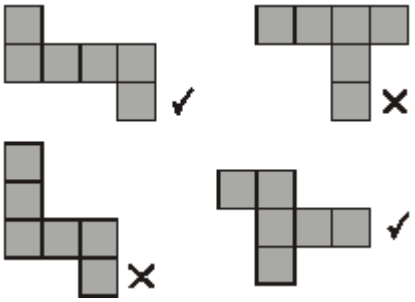
**[1]**

**M4.** Diagram completed with **ONE** of the four extra squares shown.



*Accept slight inaccuracies in drawing provided the intention is clear. Accept alternative indications, eg squares ticked or circled. Accept more than 1 square drawn if **all** correct.*

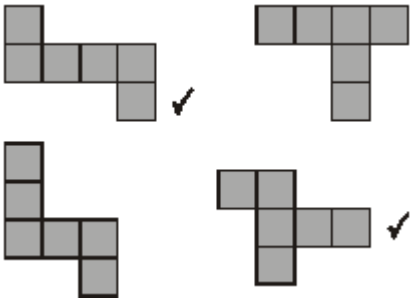
**M5.** Award **TWO** marks for diagrams ticked or crossed as shown:



If the answer is incorrect, award **ONE** mark for three diagrams ticked or crossed correctly.

*Accept alternative unambiguous indications such as **Y** or **N**.*

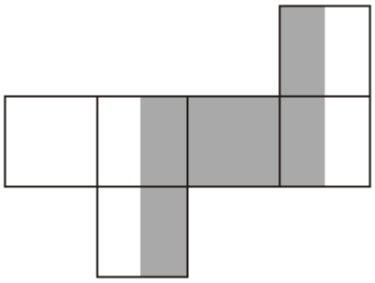
*For **TWO** marks accept:*



**Up to 2**

**[2]**

**M6.** Award **TWO** marks for four faces correctly shaded as shown:



If the answer is incorrect, award **ONE** mark for:

- only the correct four faces marked **AND** at least two shaded correctly

**OR**

- four faces shaded correctly **AND** one shaded incorrectly

**OR**

- three faces shaded correctly **AND** none shaded incorrectly.

*The width of each shaded rectangle is irrelevant provided the intention is clear.*

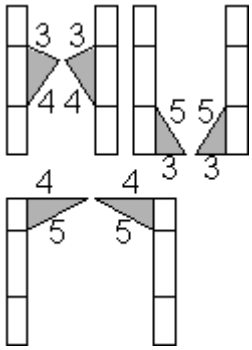
**Up to 2 (U1)**

**[2]**

**M1.** (a) Award **ONE** mark for correct position of triangle as shown in one of the diagrams below.

**1**

(b) Award **ONE** mark for accurate drawing of one triangle with right angle (90° ± 2.5°) **AND** length of lines as indicated ± 2mm.

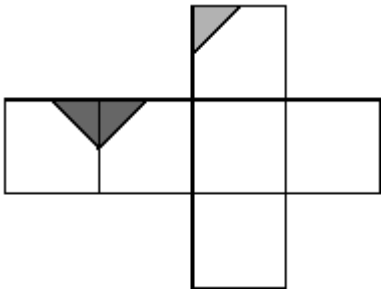



***No marks*** *awarded for triangles* ***not*** *attached to main stem.*

**1**

**[2]**

**M2.** Diagram marked as shown:



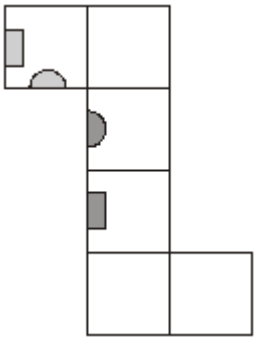
*Both triangles must be correctly marked.*

*Accept slight inaccuracies in drawing, provided the intention is clear.*

*Triangles need not be shaded.*

**[1]**

**M3.** Diagram completed as shown:



*Accept: inaccuracies in drawing provided the intention is clear.*

*Shapes need not be shaded.*

**[1]**