

Yr 6 Shape Unit 3 (6257)

Additional teacher instructions for practice sheets

These notes indicate which practice sheets are most appropriate for which groups.

Day 1 Fabric patterns Sheet 1

Working towards ARE do questions 1-4

Working at ARE / Greater Depth have a go at the whole sheet.

Day 2 Tents and houses Sheet 1

Working towards ARE work out the missing angles in all four triangles. With support have a go at one or two of the quadrilaterals.

Working at ARE / Greater Depth have a go at the whole sheet.

Day 2 Triangular jigsaw Sheet 2

Working at ARE / Greater Depth

Day 3 Railway junctions Sheet 1

Working towards ARE do numbers 1-3 and have a go at the challenge.

Working at ARE do numbers 1-5 and have a go at the challenge.

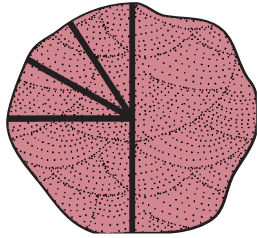
Greater Depth do the whole sheet.

Fabric patterns

Sheet 1

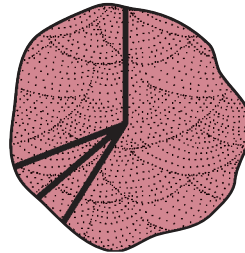
Padma is designing patterns for a fabric. She uses angles round a point. She worked out the sizes of the angles going clockwise round the circle each time. But she has got confused! One of A, B, C and D is impossible as it doesn't add to 360. Identify the one in each set which *cannot* work.

1.



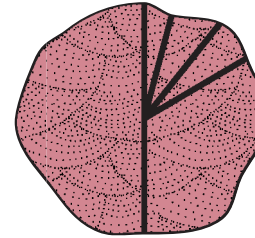
- A. $180^\circ, 90^\circ, 30^\circ, 29^\circ, 31^\circ$
- B. $180^\circ, 90^\circ, 27^\circ, 32^\circ, 41^\circ$
- C. $180^\circ, 90^\circ, 34^\circ, 36^\circ, 20^\circ$
- D. $180^\circ, 90^\circ, 39^\circ, 18^\circ, 33^\circ$

2.



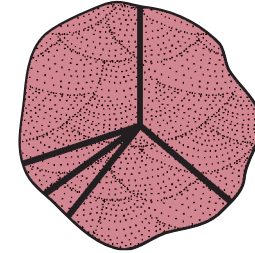
- A $222^\circ, 15^\circ, 13^\circ, 110^\circ$
- B $231^\circ, 14^\circ, 18^\circ, 108^\circ$
- C $214^\circ, 23^\circ, 24^\circ, 99^\circ$
- D $224^\circ, 28^\circ, 13^\circ, 95^\circ$

3.



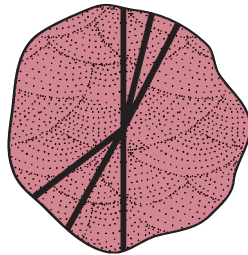
- A $15^\circ, 24^\circ, 39^\circ, 102^\circ, 180^\circ$
- B $16^\circ, 25^\circ, 40^\circ, 99^\circ, 180^\circ$
- C $11^\circ, 23^\circ, 33^\circ, 113^\circ, 180^\circ$
- D $10^\circ, 12^\circ, 41^\circ, 126^\circ, 180^\circ$

4.



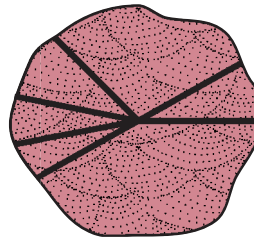
- A $122^\circ, 102^\circ, 14^\circ, 37^\circ, 90^\circ$
- B $120^\circ, 95^\circ, 31^\circ, 24^\circ, 90^\circ$
- C $118^\circ, 94^\circ, 29^\circ, 29^\circ, 90^\circ$
- D $124^\circ, 96^\circ, 9^\circ, 41^\circ, 90^\circ$

5.



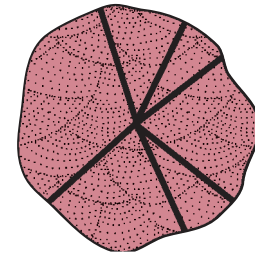
- A $8^\circ, 7^\circ, 165^\circ, 24^\circ, 35^\circ, 121^\circ$
- B $14^\circ, 12^\circ, 133^\circ, 32^\circ, 44^\circ, 123^\circ$
- C $11^\circ, 17^\circ, 151^\circ, 38^\circ, 43^\circ, 100^\circ$
- D $10^\circ, 13^\circ, 141^\circ, 39^\circ, 42^\circ, 115^\circ$

6.



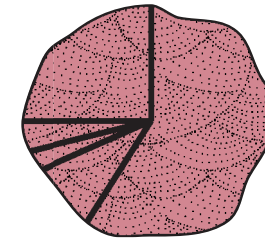
- A $90^\circ, 47^\circ, 176^\circ, 18^\circ, 15^\circ, 14^\circ$
- B $90^\circ, 59^\circ, 166^\circ, 23^\circ, 12^\circ, 10^\circ$
- C $90^\circ, 55^\circ, 164^\circ, 26^\circ, 13^\circ, 12^\circ$
- D $90^\circ, 57^\circ, 151^\circ, 37^\circ, 19^\circ, 14^\circ$

7.



- A $44^\circ, 29^\circ, 85^\circ, 15^\circ, 89^\circ, 98^\circ$
- B $45^\circ, 30^\circ, 84^\circ, 22^\circ, 82^\circ, 97^\circ$
- C $43^\circ, 28^\circ, 83^\circ, 14^\circ, 81^\circ, 101^\circ$
- D $41^\circ, 31^\circ, 88^\circ, 17^\circ, 79^\circ, 104^\circ$

8.



- A $192^\circ, 87^\circ, 19^\circ, 16^\circ, 46^\circ$
- B $185^\circ, 108^\circ, 8^\circ, 12^\circ, 59^\circ$
- C $191^\circ, 107^\circ, 7^\circ, 13^\circ, 57^\circ$
- D $188^\circ, 104^\circ, 16^\circ, 13^\circ, 50^\circ$

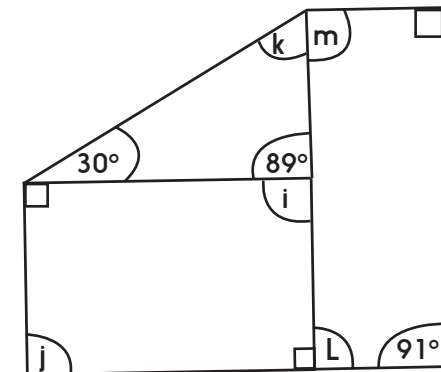
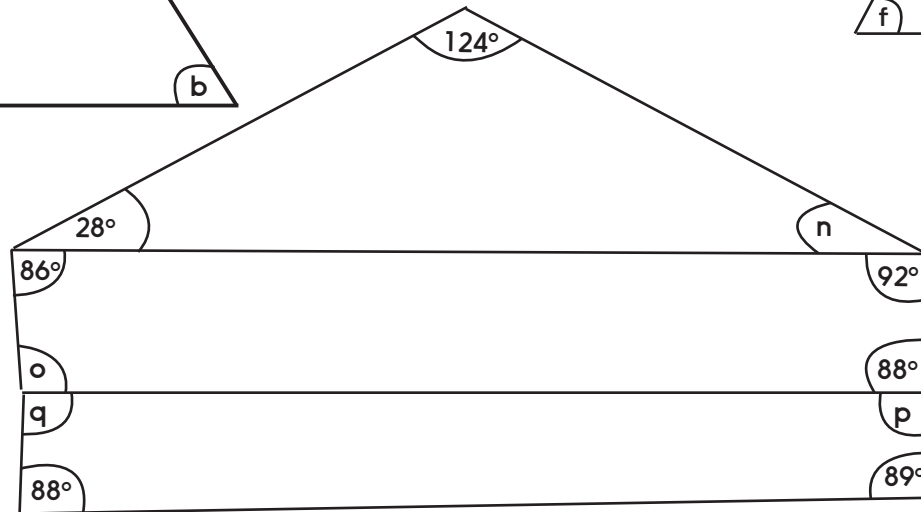
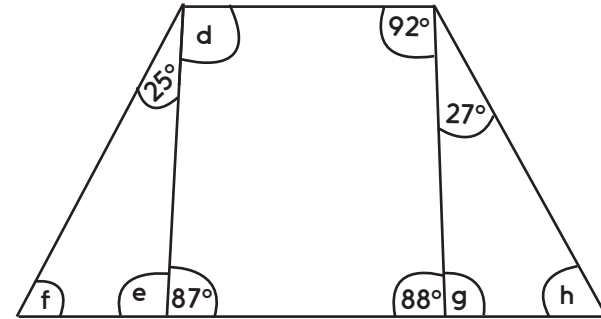
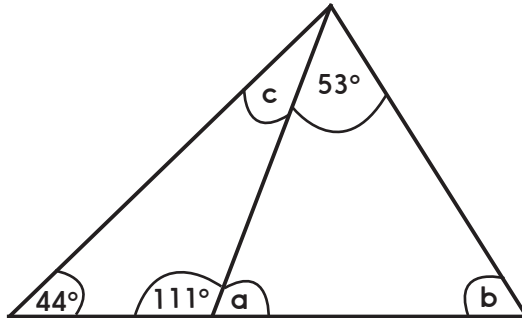
Challenge

Make up some more puzzles like these. Can your partner find which sets of answers could be correct?

Tents and houses

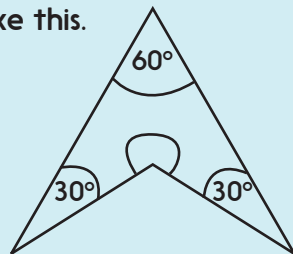
Sheet 1

Here are some drawings of tents and houses. Work out the missing angles.



Challenge

Sketch a quadrilateral like this.
Find the reflex angle.



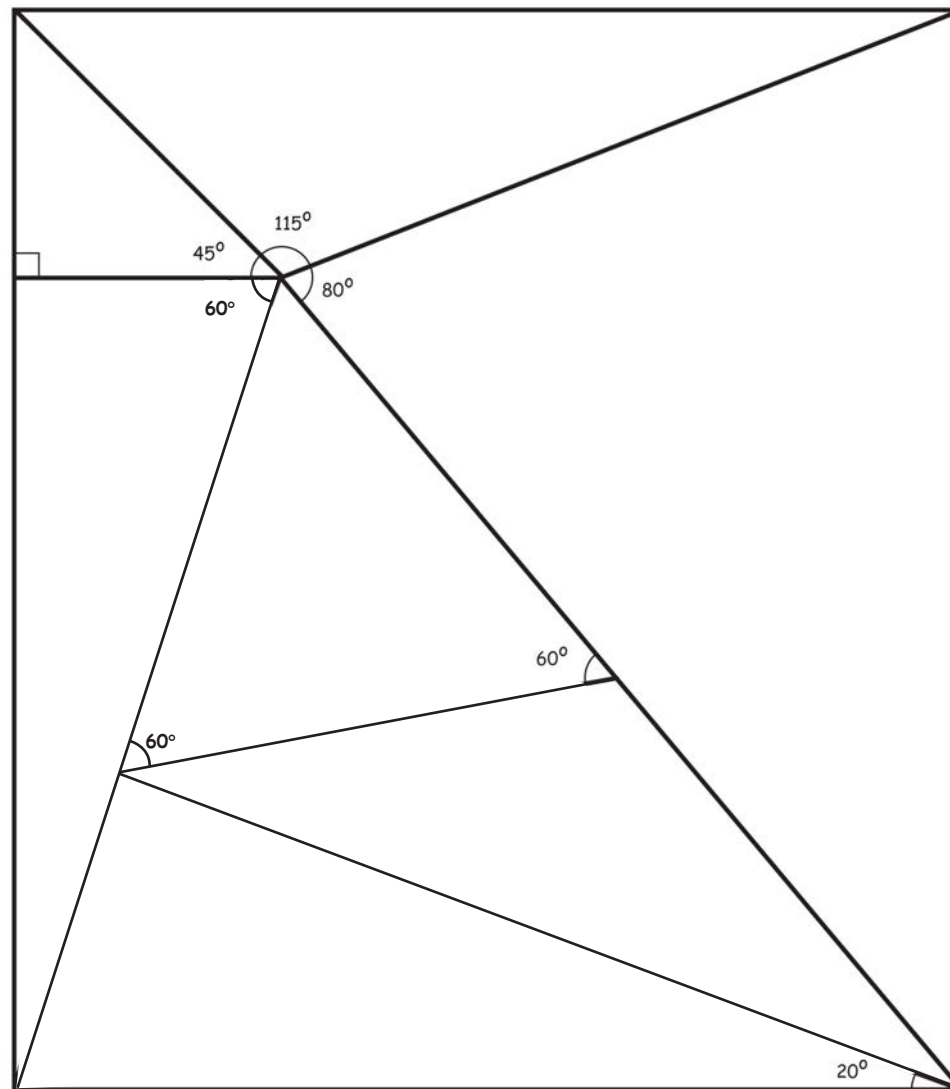
Sketch your own similar quadrilateral but make the two smallest angles 40.
The third acute angle is 80. What size is the reflex angle then?

Triangular jigsaw

Sheet 2

Remember that angles in a triangle add up to 180° and angles on a straight line add up to 180° .

Use these two facts to help you to work out all the missing angles in this triangular jigsaw.

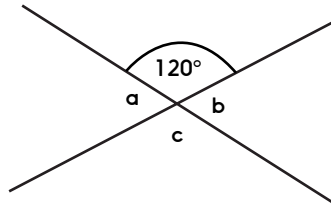


Railway junctions

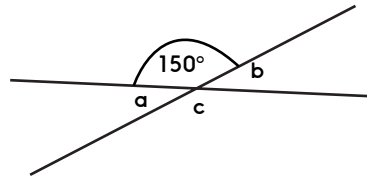
Sheet 1

Sam the railway surveyor is planning some railway junctions. Work out the missing angles in Sam's designs.

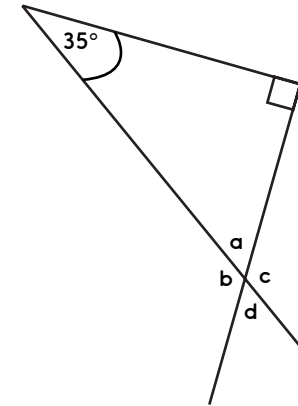
1



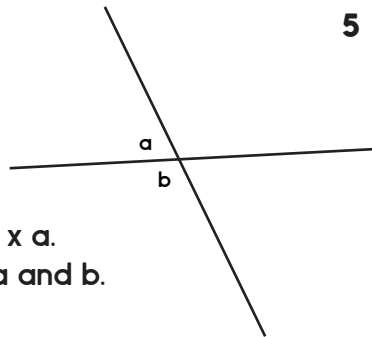
2



3

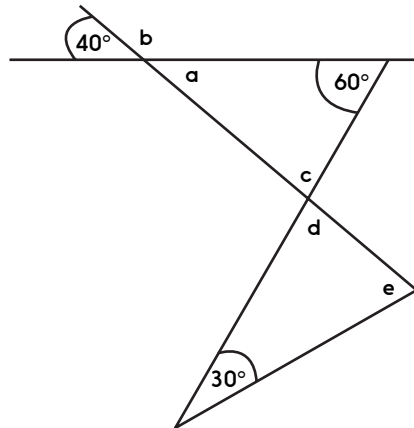


4

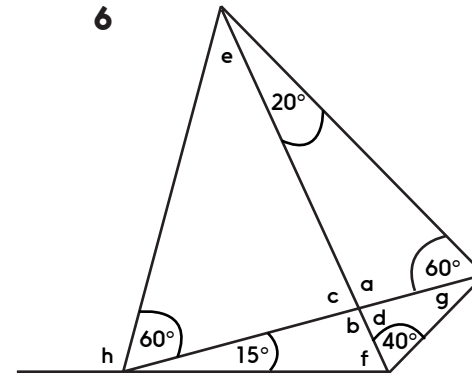


b is 2 x a.
Find a and b.

5



6



Challenge

Draw a railway junction where the two big angles add up to three times the two smaller angles.
What are the angles?

Shape

Answers

Day 1 Fabric patterns Sheet 1

1. B will not work.
2. B will not work.
3. D will not work.
4. A will not work.
5. B will not work.
6. D will not work.
7. C will not work.
8. B, C and D will not work.

Day 2 Tents and houses Sheet 1

1. $a = 69^\circ$
 $b = 58^\circ$
 $c = 25^\circ$
2. $d = 93^\circ$
 $e = 93^\circ$
 $f = 62^\circ$
 $g = 92^\circ$
 $h = 61^\circ$
3. $i = 91^\circ$
 $j = 89^\circ$
 $k = 61^\circ$
 $l = 90^\circ$
 $m = 89^\circ$
4. $n = 28^\circ$
 $o = 94^\circ$
 $p = 92^\circ$
 $q = 91^\circ$

Challenge

The reflex angle in the given quadrilateral is 240° .

In the new quadrilateral the reflex angle would be 200° .

