1 **(a)** Sarah's height is 1.56 m.
David's height is 180 cm.

Express the ratio Sarah's height : David's height in its simplest form.

(a) _____ : _____ **[3]**

(b) Sarah and David share the running costs of their car in the ratio 3 : 2.
One year, the running costs for the car are £3700.

Calculate how much they each pay.

(b) Sarah £ _____

David £ _____ **[3]**

2   In triangle ABC,

- the sizes of the angles A, B and C are in the ratio 2 : 3 : 5,

- the length of the longest side is 6 cm,

- the angles add up to 180°.

Calculate the length of the shortest side of triangle ABC.
Use this to show that the ratio of the sides is not the same as the ratio of the angles.   **[7]**

3   **(a**   The students in group 11Y are raising money for charity.
They have decided to share the money between three charities: Sustrans, Oxfam and the NSPCC.
The ratio Sustrans : Oxfam : NSPCC is 1 : 2 : 5.

(i)   Sally is a member of group 11Y.
She raises £72.

How much of this money will go to the NSPCC?

(a)(i) £ _____ **[2]**

(ii)   £360 goes to Oxfam from group 11Y.

How much money did group 11Y raise altogether?

(ii) £ _____ **[2]**

(b) This table summarises the amount of money that the 30 members of group 11B raised for charity.

Amount (£a)	Frequency
$0 \leq a < 20$	2
$20 \leq a < 40$	5
$40 \leq a < 60$	7
$60 \leq a < 80$	11
$80 \leq a < 100$	3
$100 \leq a < 120$	2

Calculate an estimate of the mean amount raised by a member of this group.

(b) £ _____ **[4]**

4 Margie makes blackberry and apple jam.
Her recipe uses 2 kg of blackberries and 750 g of apples.
This makes 6 jars of jam.

(a) Show that the ratio of blackberries to apples, in its simplest terms, is 8 : 3.
Explain clearly how you obtain the answer.

[2]

(b) Margie has 3 kg of blackberries.
She uses them all to make blackberry and apple jam.

(i) What weight of apples does she use?
Give the units of your answer.

(b)(i) _____ [3]

(ii) How many jars of the jam does she make?

(ii) _____ [1]

5   **(a**   In a sale, the ratio of the sale price to the normal price is 3 : 5.
        Mary buys a jacket in the sale.
        Its normal price is £45.

        What is the sale price of the jacket?

                                                          (a) £ _____ **[2]**

   (b) On the final day of the sale, prices are reduced further.
        The price of a rucksack on the final day is £12; its normal price is £32.

        Write the ratio of the final price to the normal price.
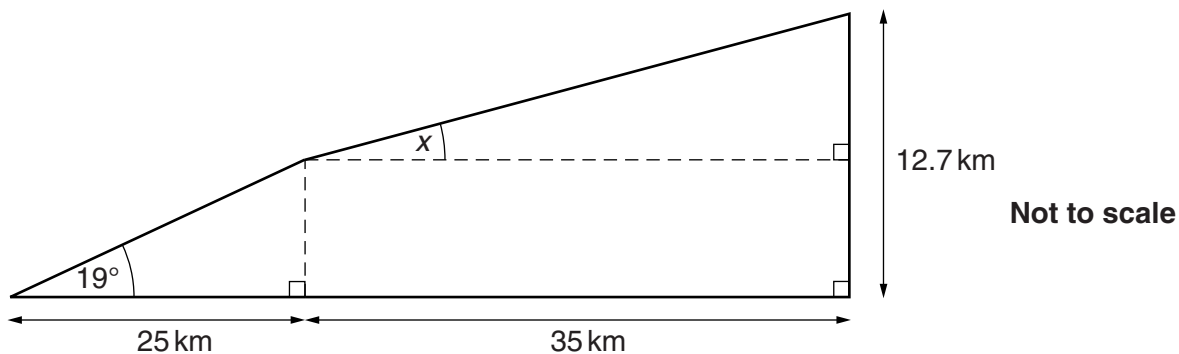   Give your answer in its simplest form.

                                                          (b) _____ **[2]**

6   An aircraft flew from Amsterdam to Singapore.

(a) On the flight there were 325 passengers.
The ratio   adults : children   on this flight was 23 : 2.

How many children were on this flight?

(a) _____ **[2]**

(b) As the aircraft left Amsterdam, at sea level, it climbed at an angle of 19° to the horizontal until it was above a point 25 km from Amsterdam.
It then changed the angle of climb until its height above sea level was 12.7 km.
The aircraft was then above a point a further 35 km from Amsterdam, as shown in the diagram.

12.7 km

Not to scale

19°

25 km   35 km

Calculate *x*, the angle of climb on the second stage of its journey.
Show your method clearly.

(b) _____ ° **[5]**