Geometry and Measurement Practice 1

1) Richard is a taxi driver and to work out how much he charges he uses the formula

$$F=2+1.2m$$

Where F is the fare in pounds and m is the distance of the journey in miles.

(a) Calculate the fair for a 7 mile journey.

(2)

(b) Richard needs to earn at least £50 a day. How much more money does he need to earn? (2)

2) A helicopter flies 35km on a bearing of 025° from Mortown, and then flies 55km on a bearing of 120° arriving at Nothill.
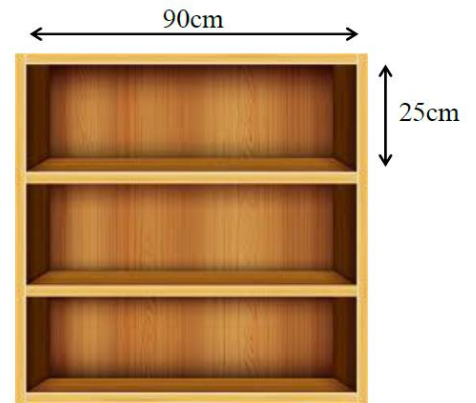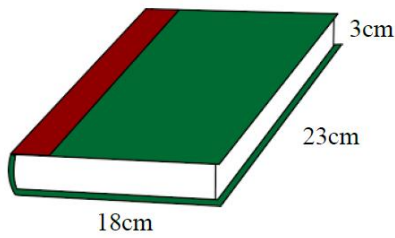
(a) Make a scale drawing of the route using a scale of 1cm represents 5km. (3)

(b) How far, in kilometres, is the direct route from Mortown to Nothill? (2)
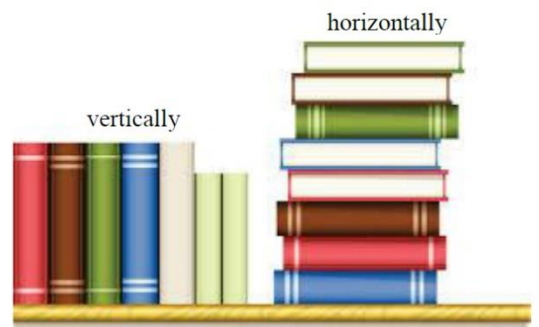
3) A book has a length of 23cm, a width of 18cm and a depth of 3cm as shown below.

Nikki has many of these books and wants to stack them in a bookshelf as shown below. It has 3 shelves each with a length of 90cm and a height of 25cm.

The book can be stacked either horizontally or vertically as shown.

(a) What is the greatest number of books that will fit into the bookshelf if they are to be placed
   (i)   Vertically?
   (ii) Horizontally? (5)

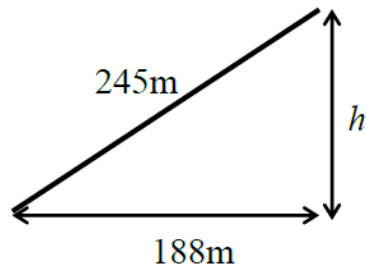(b) Which way should Nikki stack the books to get the most number in the bookshelf? (1)

4) A match box is supposed to contain 100 ± 4 matches. The number of matches of 16 boxes are counted and shown below.

   99, 100, 98, 101, 101, 99, 100, 104, 95, 99, 97, 103, 104, 95, 97, 100

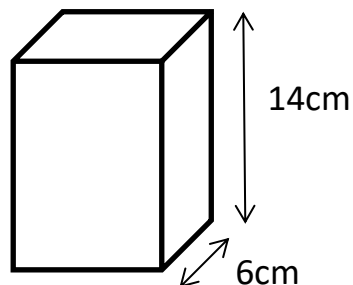   Which of these boxes of matches would be outside the tolerance? (2)

5) Below is the cross section of a ski slope.

(a) Calculate the height h of the ski slope. (3)

(b) If the gradient of a ski slope is more than 0.85 then it is regarded as being dangerous. Is the ski slope dangerous? Justify your answer. (3)

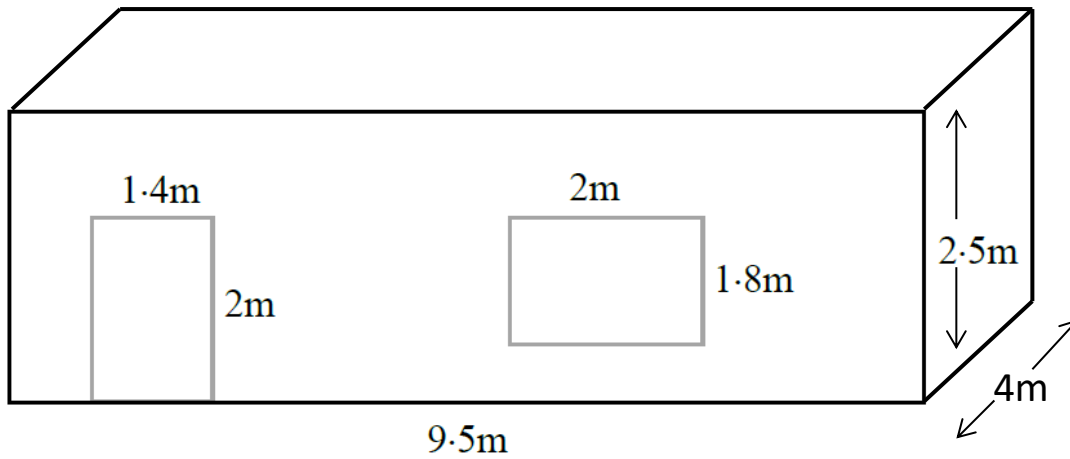6) Isabella has started a small business making jam. Each jar is a square based cuboid as shown:

She buys jam in 12 litre tubs.

(a) How many jars of jam can she fill from one tub? (5)

(b) If Isabella triples the volume of jam in her jars, how many will she be able to make with one tub? (2)

7) Mary is planning to wallpaper her bedroom wall as shown below.

1·4m

2m

2m

1·8m

2·5m

4m

9·5m

Paint: 1 litre tin covers 12m².

(a) What is the total area of the bedroom walls? (4)

(b) What volume of paint must Mary buy to paint the walls of her bedroom? (1)

(c) Paint is sold in 1 litre tins. How many tins will Mary need to buy? (1)

(d) Each tine costs £12.59. What will the cost of painting her bedroom be? (1)

(e) Mary wishes to put a graphical border around her bedroom walls (excluding the door and window). Calculate the total length of border needed? (2)