

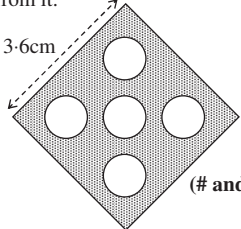
**Part 2**

You may use a calculator. Show appropriate working.

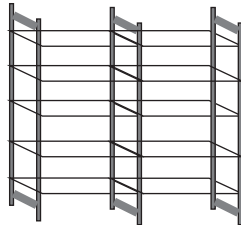
Time allowed: 20 minutes.

All questions should be attempted.

1. Solve algebraically the equation  $11x + 7 = 5x + 13$  (3)

2. An earring is made from a square of copper with 5 circles cut out from it.  
The square has side 3.6 cm and each circle has diameter 0.9 cm.  (3 and 4)
- Calculate the area of copper in each earring.  
(ie the shaded area in the diagram)

3. A shelving unit is made by joining side panels and shelves as shown below.



The shelves shown in the diagram have three side panels and ten shelves.

- (a) Copy and complete the following table. (1)

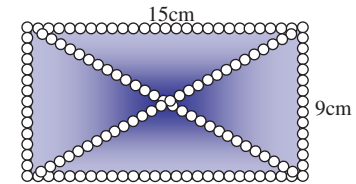
Number of side panels ( $P$ )	2	3	4	5		20
Number of shelves ( $S$ )		10		20		

- (b) Write down a formula for the number of shelves,  $S$ , when you know the number of side panels,  $P$ . (2)

- (c) If there are 50 shelves, how many side panels would be needed? (# and 1)

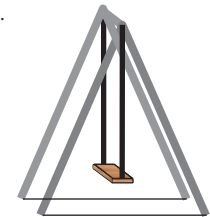
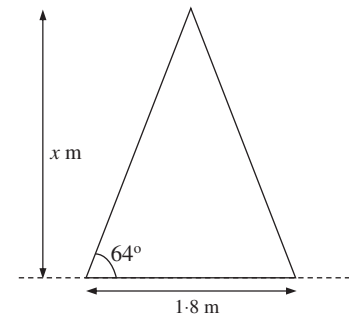
4. Mr. Fit ran the Glasgow Marathon last year. It took him 3 hours and 45 minutes and he ran at an average speed of 7 m.p.h.  
Calculate the length of the marathon giving your answer to the nearest mile. (3)

5. Anne has a tee shirt which has a rectangular motif on it. Strips of sequins run along the diagonals and round the perimeter of the rectangle.



- Calculate the total length of sequins required for this motif. (# and 4)

6. The frame of a child's swing is in the shape of an isosceles triangle.  
The base of the triangle is 1.8 metres and makes an angle of  $64^\circ$  with the horizontal as shown in the diagram.



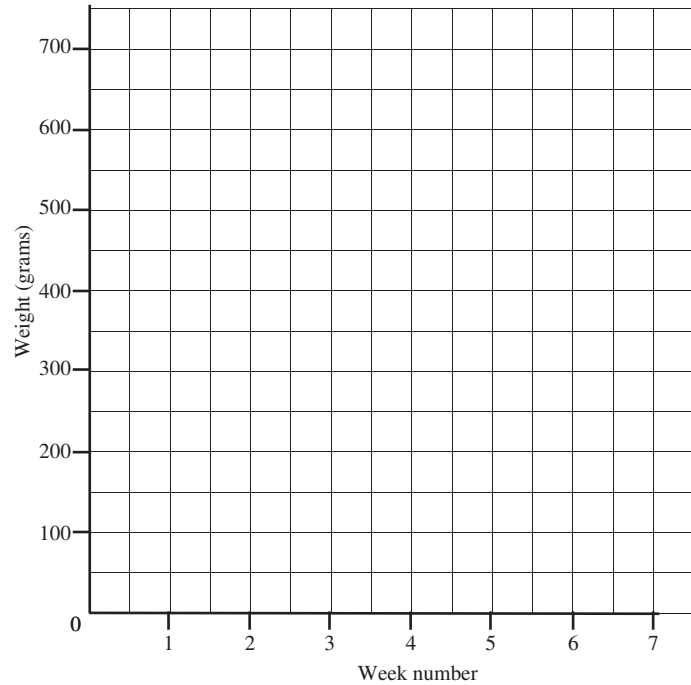
To be safe the height of the swing should be no more than 1.9 metres.

- Is this swing safe? (3 and #)

7. David has a few tomato plants in his greenhouse. Each week he picks the tomatoes and records the weight of them.

Week 1	100g	Week 5	500g
Week 2	250g	Week 6	450g
Week 3	300g	Week 7	575g

- (a) On the grid below, draw a scattergraph to show this information. (2)



- (b) Draw a line of best fit through the points on the graph. (1)
- (c) David didn't weigh the tomatoes on week 4 but estimated that they would have weighed 440g. Do you agree with this? (R)

8. Sonia and Kate bought tickets for two different raffles.
- Raffle one had a total of 300 tickets and Sonia bought 6 of them.
- Kate had 8 tickets for the other raffle where there were a total of 360 tickets sold.
- Kate thought she had a better chance of winning than Sonia.
- Is she correct? Justify your answer. (2 and R)

*End of part 2 of the Test*