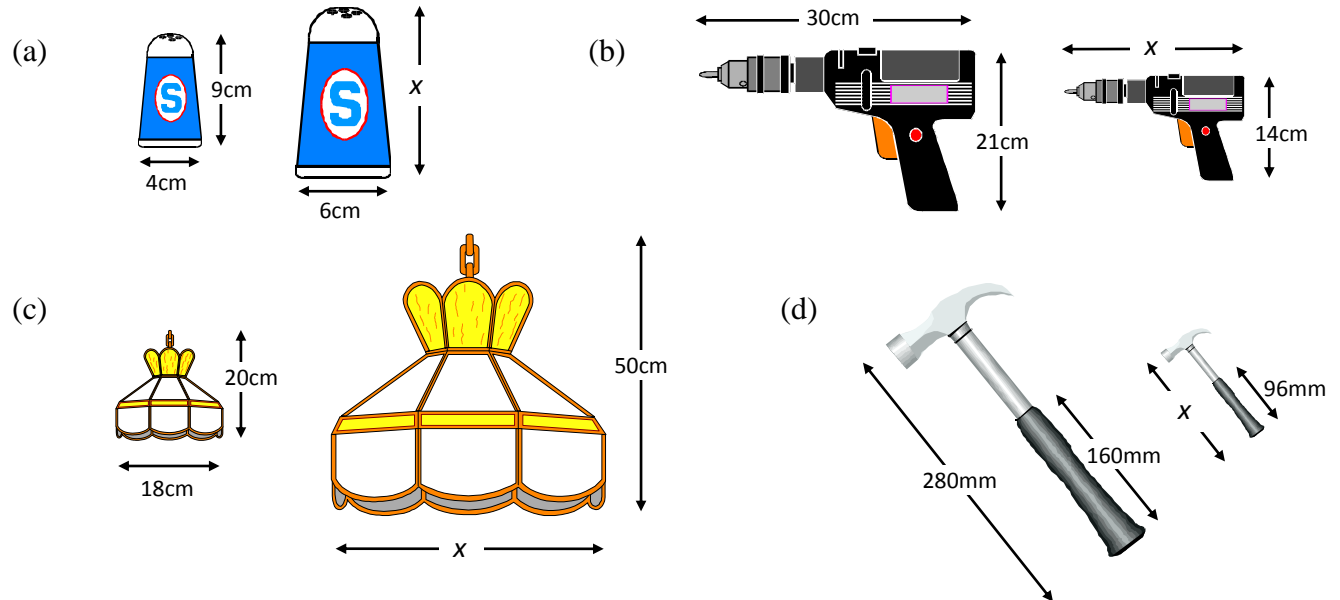# National 4 Mathematics: Homework 3

§ 1 Similarity
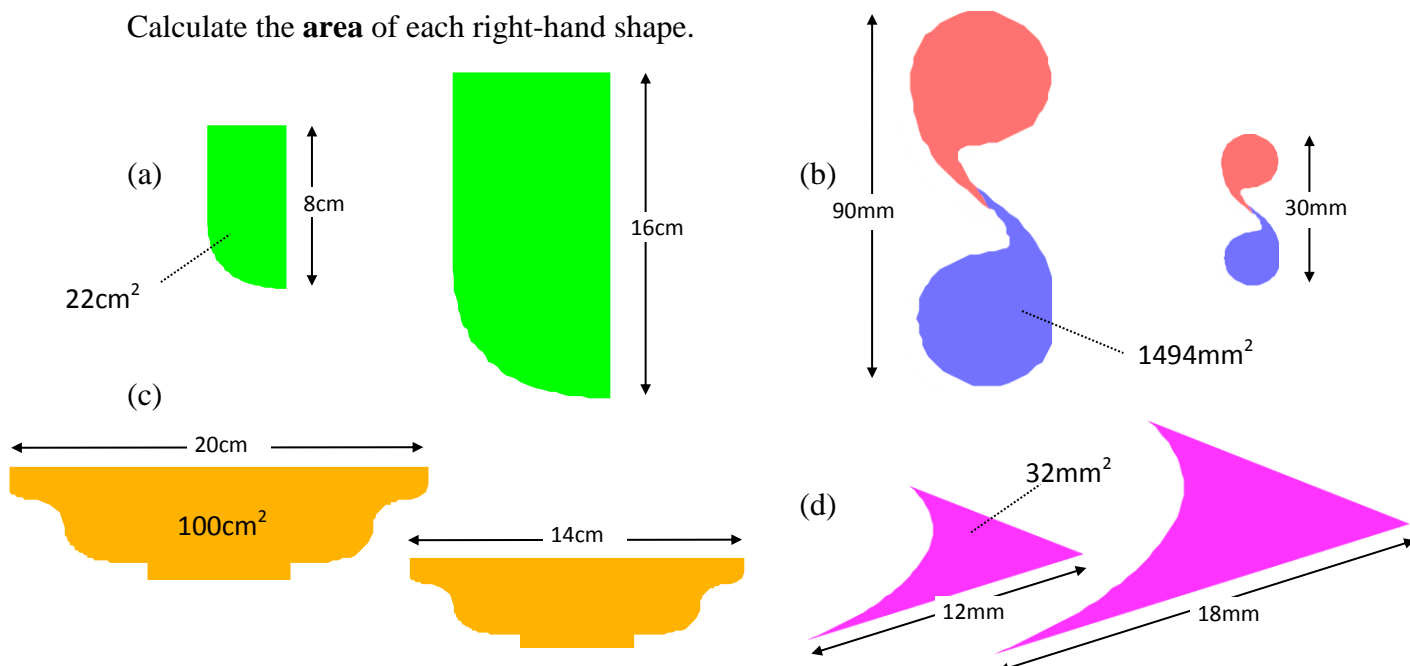
1   Each diagram below shows a pair of similar shapes or objects. For each pair …….

i) state the scale factor   ii) calculate the length marked x .

(a)

9cm

4cm

x

6cm

(b)

30cm

21cm

x

14cm

(c)

20cm

18cm

50cm

x

(d)

280mm

160mm

x

96mm

2   An architect's drawings show that a town centre landscape garden measures
12.6 cm by 18 cm with a scale of 1cm : 10 m .
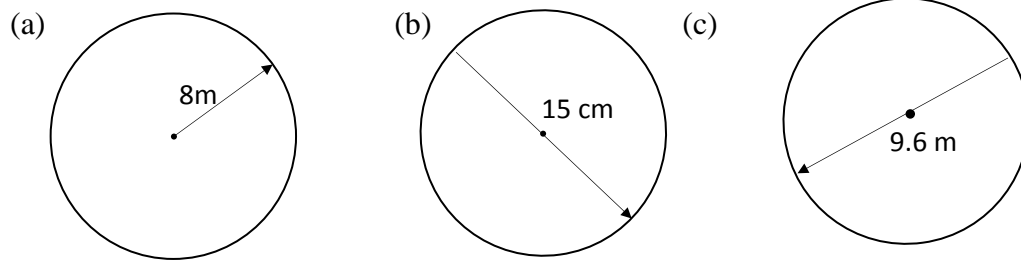What are the real dimensions of the garden?

3   Each pair of shapes below is mathematically similar.

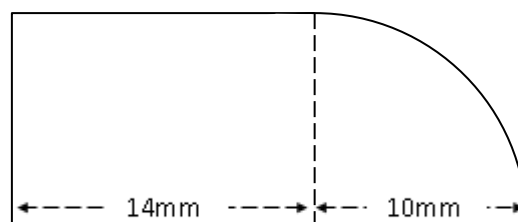Calculate the **area** of each right-hand shape.

(a)

8cm

16cm

22cm^2

(b)

90mm

30mm

1494mm^2

(c)

20cm

100cm^2

14cm

(d)

32mm^2

12mm

18mm

National 4 Mathematics: Homework 3

1   Calculate (i) the circumference and (ii) the area of the following circles

(a)

8m

(b)

15 cm
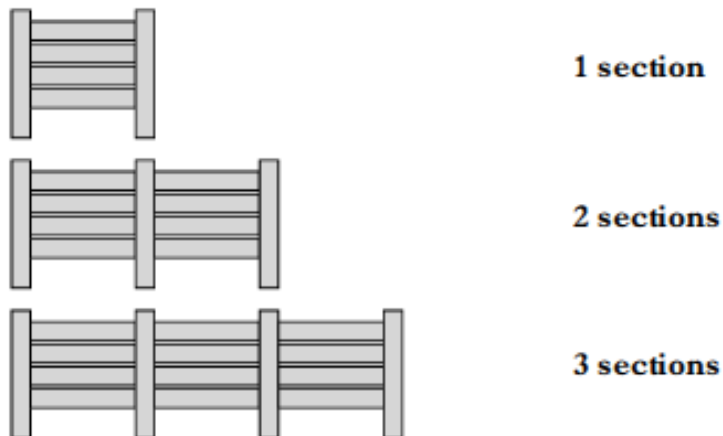
(c)

9.6 m

2   Calculate the area of this shape.

14mm   10mm

§ 3 Mixed

1   A children's play area is to be fenced.

The fence is made in sections using lengths of wood, as shown below.

1 section

2 sections

3 sections

(a) Complete the table below.

Number of sections (s)	1	2	3	4	5		12
Number of lengths of wood (w)	6	11					

(b) Write down a formula for calculating the number of lengths of wood (w), when you know the number of sections (s).

(c) A fence has been made from 81 lengths of wood.

How many sections are in this fence?

You must show your working.