

Area of your left hand

- Place your left hand on the grid (or your right hand, if you are left-handed).
- In pencil, carefully trace around the outline. Keep your pencil vertical.
- Now colour all the *complete* 1 cm squares in your hand shape.
- *Number* each whole 1 cm square.
- Now colour the small squares, with area $\frac{1}{2}$ or more in the shape.
- *Number* them.
- *Don't* count those less than $\frac{1}{2}$ cm².
- Find the *sum* (add the 2 numbers). This will be the *approximate area of your hand* in cm².

Complete:

1. Number of whole 1 cm² squares =

2. Number of $\frac{1}{2}$ cm² or more squares =

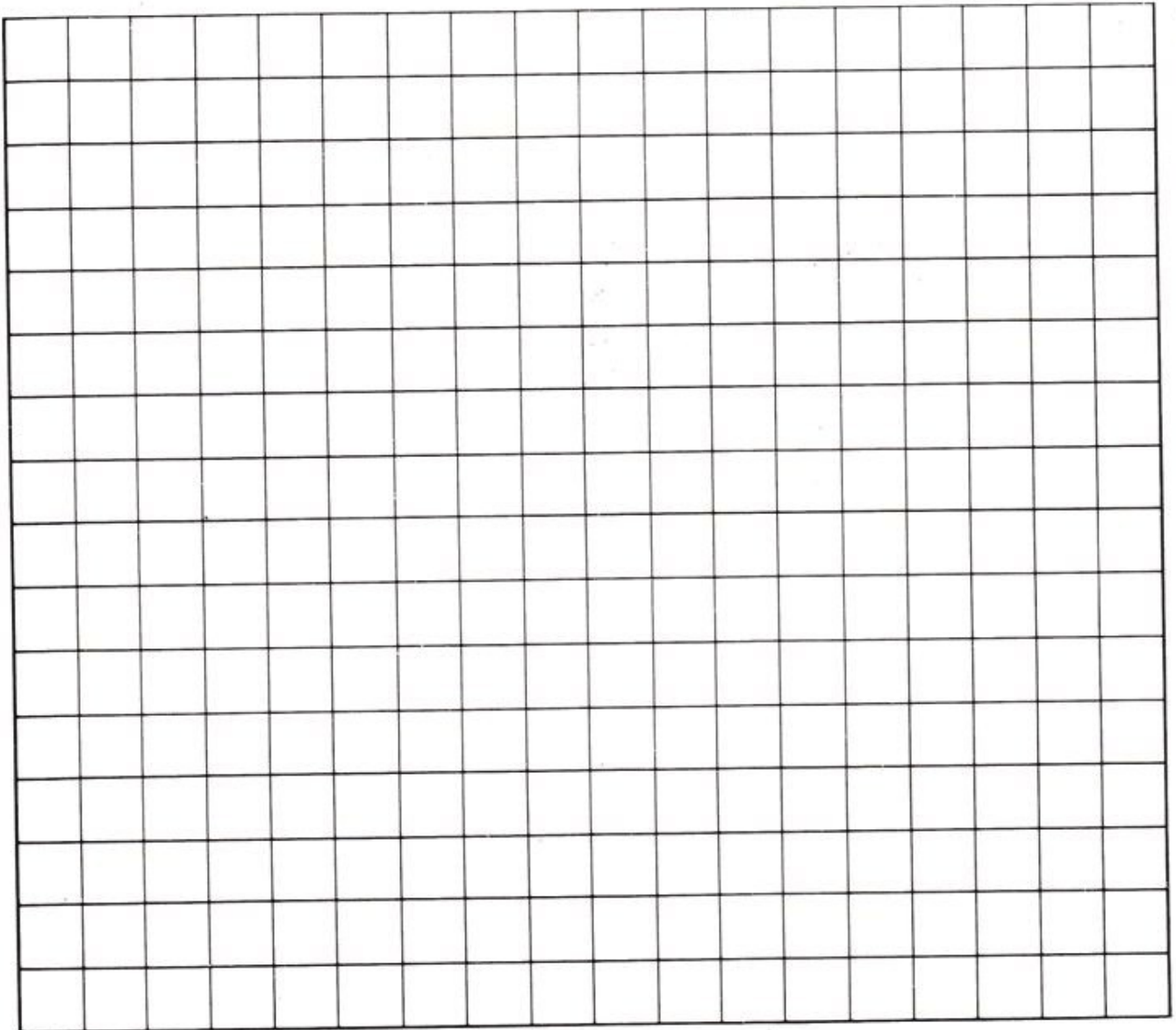
3. Add

<i>Total</i>

 cm²

Who has the largest hand area in the class?

.....

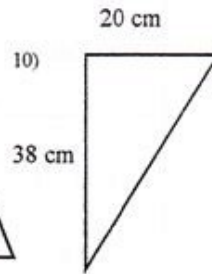
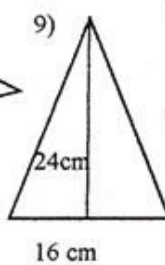
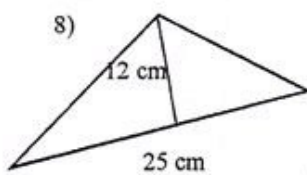
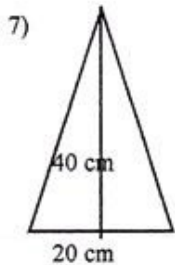
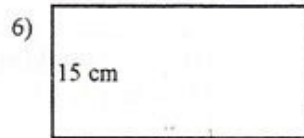
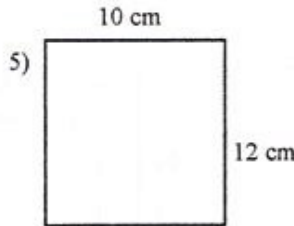
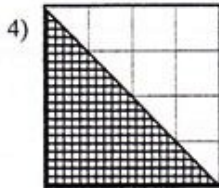
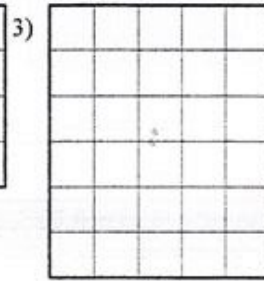
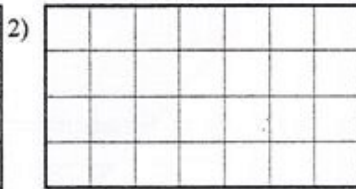


Measurement 1 - Unit 7

Lesson **3**

Why Don't People play Cards on a Ship?

Find the areas of each of the figures below. Measurements are in cms



Answer	Letter
1)	A
2)	B
3)	C
4)	D
5)	E
6)	G
7)	H
8)	I
9)	K
10)	L
11)	M
12)	N
13)	O
14)	S
15)	T
16)	U
17)	W
18)	Y

Rectangles				Triangles					
	Length (L)	Breadth (B)	L x B	Area		Base	Height	1/2 x b x h	Area
11)	6	8	6 x 8		15)	7	10	1/2 x 7 x 10	
12)	9	12			16)	10	14		
13)	14	11			17)	20	20		
14)	15	7			18)	18	20		

28	120	30	18	70	105	120	105	154	48	120	154	108	120	150	105	18	380	200	18	180	105
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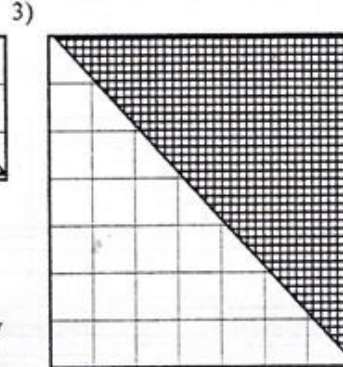
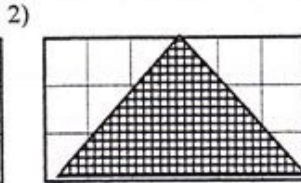
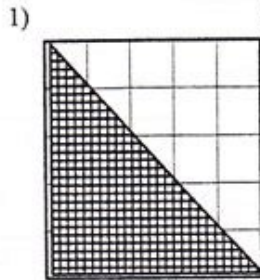
105	35	18	108	8	150	108	300	154	108	35	400	120	8	120	30	192
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Measurement 1 - Unit 7

Lesson 3

Areas of Triangles

By using the grids, estimate the areas of the triangles below

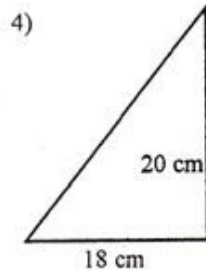


Estimates

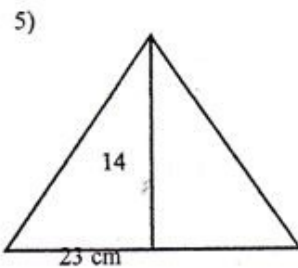
1)	
2)	
3)	

Note that the area of a triangle is given by

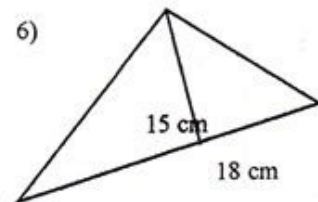
$$A = \frac{1}{2} \times \text{base} \times \text{height}$$



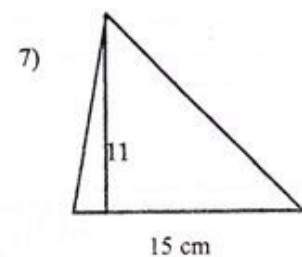
4) Working
 $A = \frac{1}{2} \times b \times h$
 $= \frac{1}{2} \times 20 \times 18$
 $= 180 \text{ cm}^2$



5) $A = \frac{1}{2} \times b \times h$
 $= \frac{1}{2} \times$



6) $A = \frac{1}{2} \times b \times h$
 $=$



7) $A = \frac{1}{2} \times b \times h$
 $=$

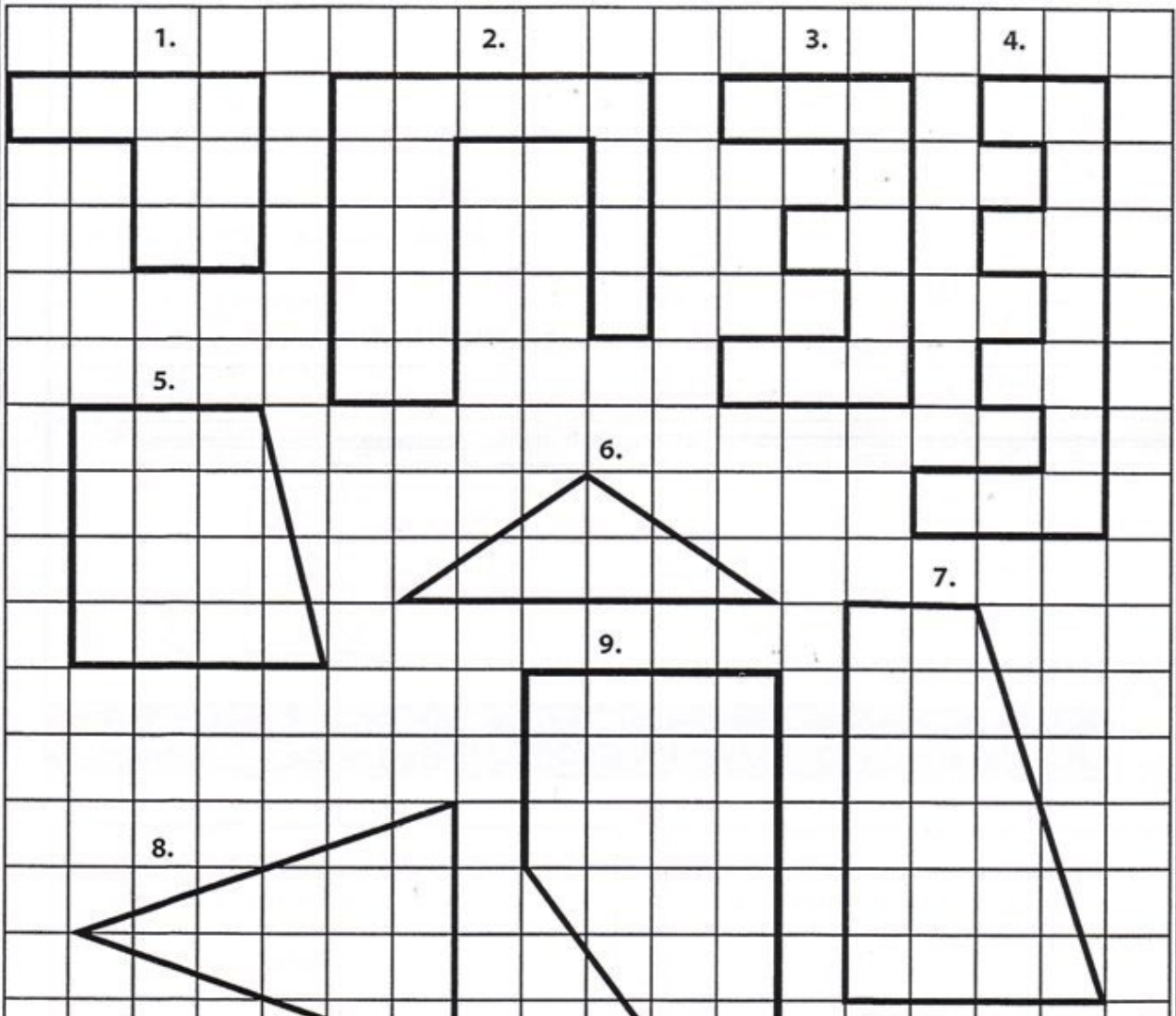
No	b (cm)	h (cm)	$\frac{1}{2} \times b \times h$	Answer (cm ²)
8)	12	6	$\frac{1}{2} \times 12 \times 6$	
9)	11	16		
10)	16	18		
11)	6	8		
12)	20	10		
13)	20	20		
14)	2.4	3.6		
15)	56	2.4		
16)	11	15		
17)	32	20		
18)	44	50		
19)	12.8	11.8		
20)	6.3	7.1		
21)	19	20		
22)	30	20		
23)	5.6	8.8		
24)	12.6	11.8		
25)	40	12		

Mark /25



Using Grids to Find Area

Work out the area and the perimeter of each shape shown below. Fill your results in the table.



Area (cm ²)	Perimeter (cm)
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	

Area & Perimeter 1



Fill in the table below. The data is for a square that keeps doubling in length.

	1 <input type="checkbox"/>	2 <input type="checkbox"/>	4 <input type="checkbox"/>	8 <input type="checkbox"/>	16 <input type="checkbox"/>
Length	1	2	4	8	16
Perimeter					
Area					

As the length doubles the perimeter is _____ times its previous value.

As the length doubles the area is _____ times its previous value.

Area & Perimeter 2



Fill in the table below for a rectangle that keeps doubling its dimensions.

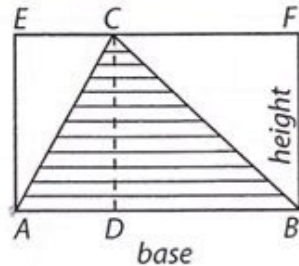
	1 <input type="checkbox"/>	2 <input type="checkbox"/>	4 <input type="checkbox"/>	8 <input type="checkbox"/>	16 <input type="checkbox"/>	32 <input type="checkbox"/>
Length	1	2	4	8	16	
Perimeter						
Area						

As the length doubles the perimeter is _____ times its previous value.

As the length doubles the area is _____ times its previous value.

Area of Triangles

info



Area ECA = Area ACD

Area CDB = Area CFB

So: The area of a triangle is half the area of the rectangle.

Area of the rectangle = base x height

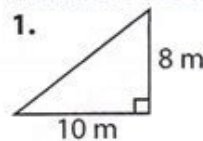
Area of the triangle must be $\frac{\text{base} \times \text{height}}{2}$

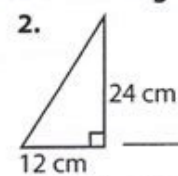
The height must be the perpendicular height above the base.

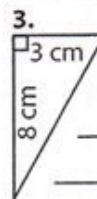
General Rule

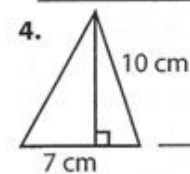
Area of a triangle = $\frac{\text{base} \times \text{perpendicular height}}{2}$

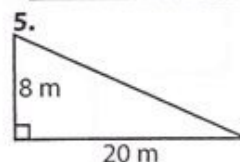
Work out the areas of the triangles below.

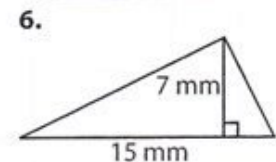






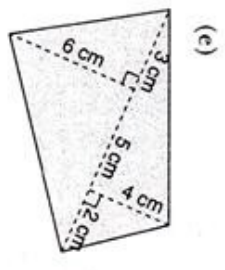
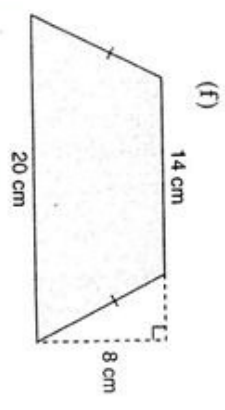
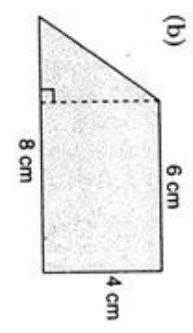
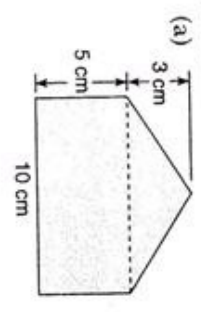




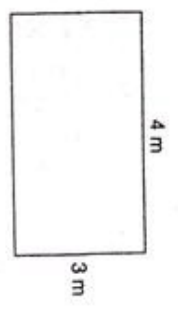


Find the area of each shape then add to find the total area

1 Determine the areas of these figures.

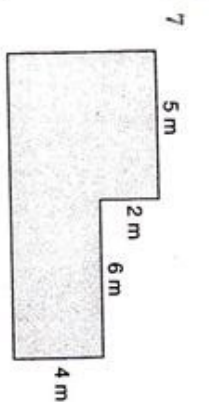
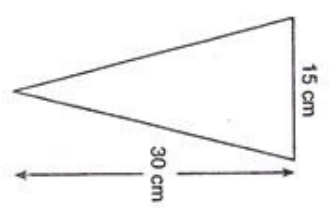


2 Tanith's parents are going to carpet her bedroom. Her bedroom is rectangular, measuring $4\text{ m} \times 3\text{ m}$. If the carpet costs \$67 per square metre, what will be the cost of carpeting the room?



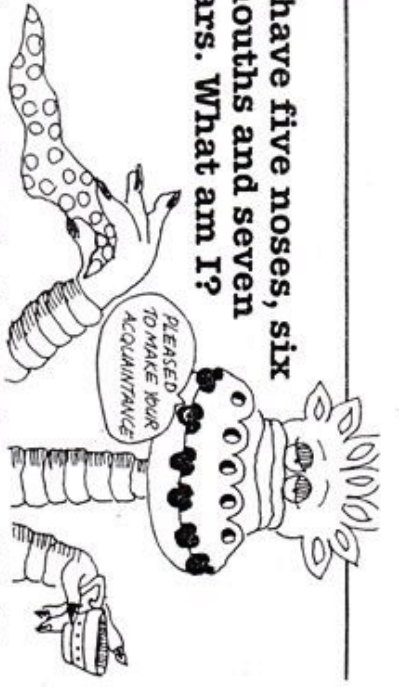
3 Jason's fence needs painting with paint that covers 16 square metres for each litre of paint. If the fence is rectangular in shape and is 80 m long by 2 m high, how many litres of paint will be needed?

4 An athletics club gave pennants to the winners of each final race. The pennants had the dimensions shown in the diagram. Find the area of each pennant.

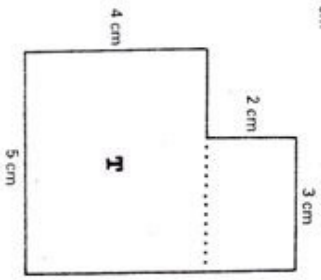
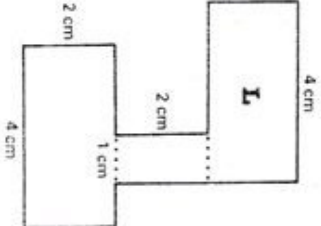
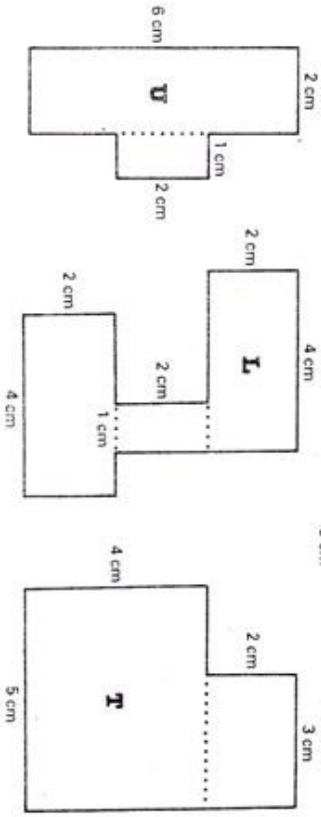
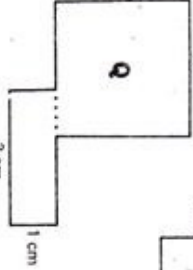
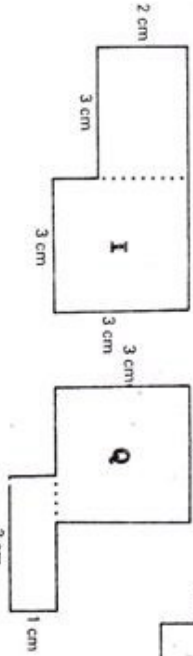
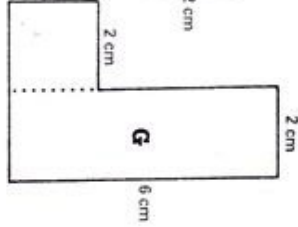
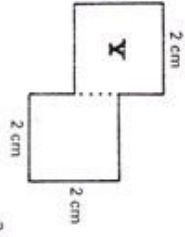
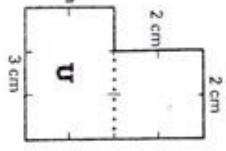
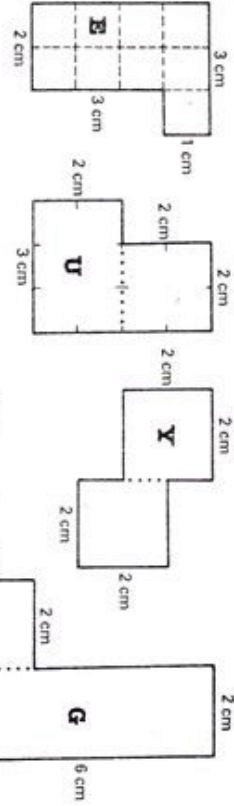


How much fertiliser would be needed to cover a lawn with the measurements shown if 1 kg will cover 10 m^2 ?

I have five noses, six mouths and seven ears. What am I?



Find the area of the composite figures below. Exchange each answer with the letter in each figure to decode the message.

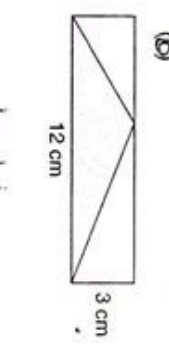
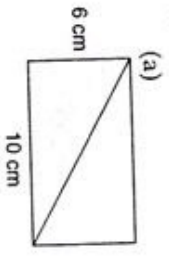


12	14	15	26	9	10	16	18	8
sq. cm	cm	sq. cm	sq. cm	sq. cm	cm	sq. cm	sq. cm	sq. cm

AREA OF TRIANGLES
 $A \Delta = \frac{1}{2}bh$ ($b = \text{base}$ $h = \text{height}$)
 $bh = \text{base} \times \text{height}$

Exercise 13:03

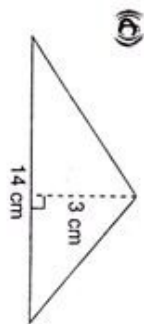
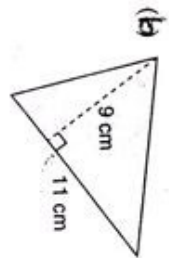
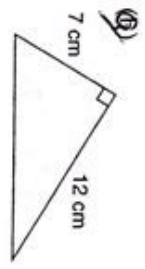
1 Calculate the area of the shaded triangle inside each rectangle.



$A = \frac{1}{2}bh$
 $= \frac{1}{2} \times \underline{\quad} \times \underline{\quad}$

$A = \frac{1}{2}bh$
 $= \frac{1}{2} \times \underline{\quad} \times \underline{\quad}$

2 Calculate the area of each triangle.

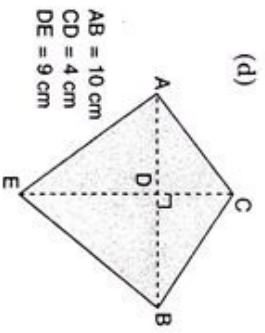


(Find the area of two separate triangles, then add their areas together)

$A \Delta \textcircled{1}$ _____

$A \Delta \textcircled{2}$ _____

Total A = _____



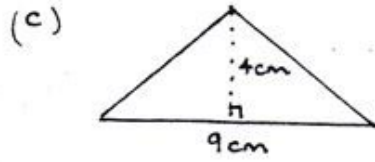
AREAS.

1. Find the areas of

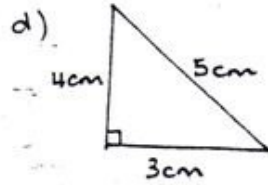
(a) a square with side 9cm $A =$ _____

(b) a rectangle with length 7m and breadth 3m.

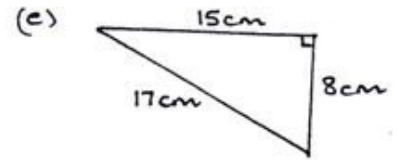
$A =$ _____



$A =$ _____
= _____

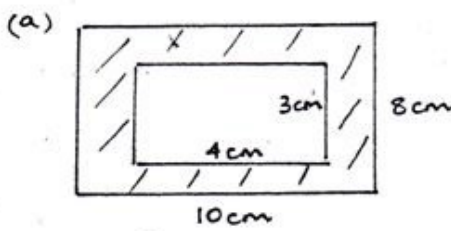


$A =$ _____
= _____

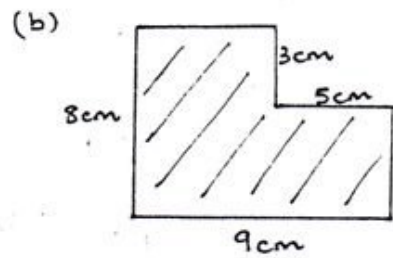


$A =$ _____
= _____

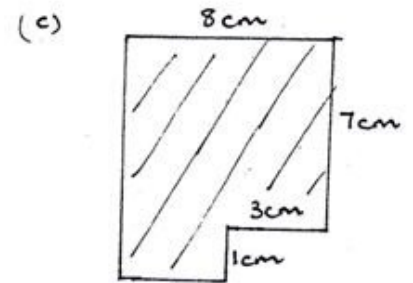
2. Find the areas of the shaded figures below



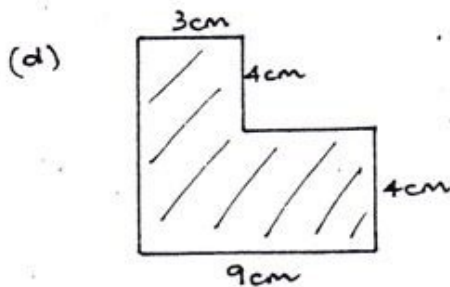
$A =$ $x - x$
= _____



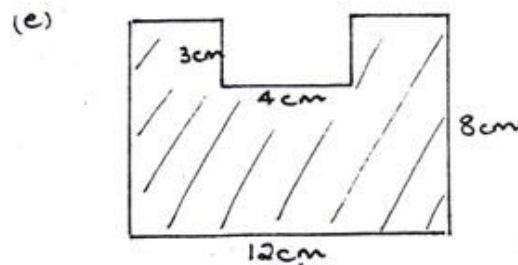
$A =$ $x - x$
= _____



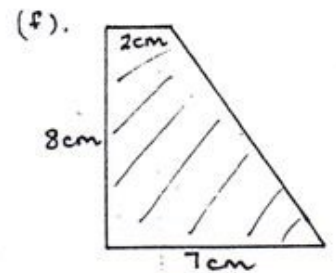
$A =$ $x - x$
= _____



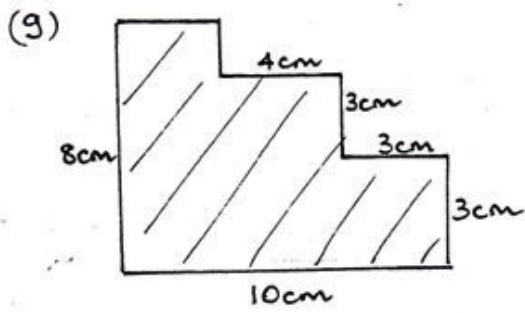
$A =$ _____
= _____



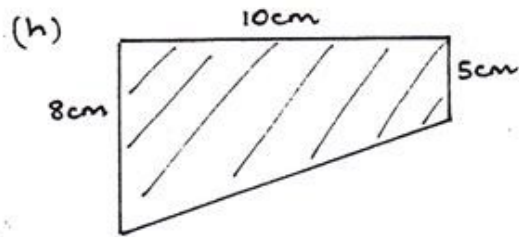
$A =$ _____
= _____



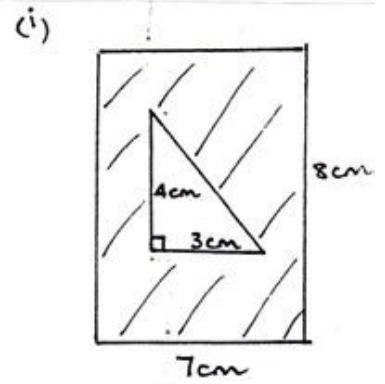
$A =$ _____
= _____



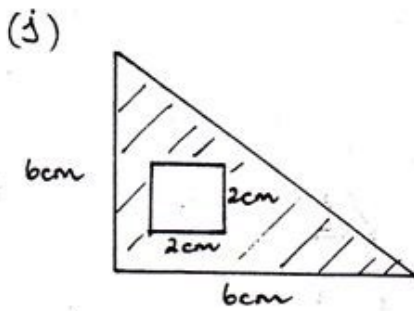
A = _____



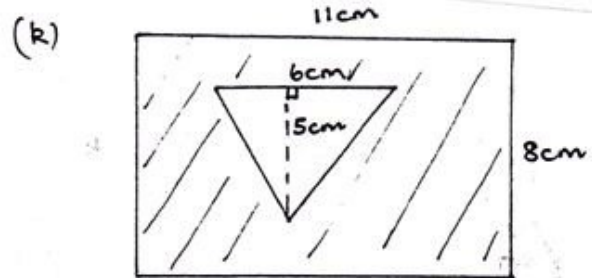
A = _____



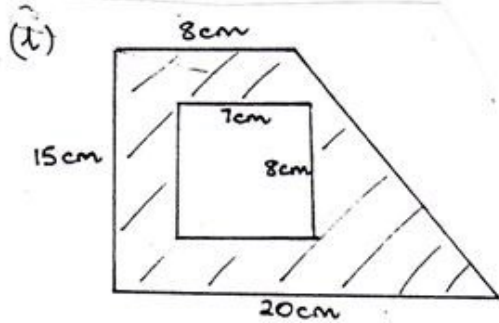
A = _____



A = _____



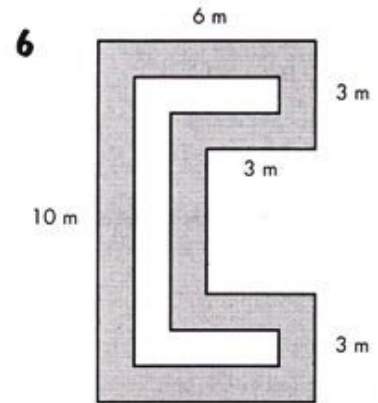
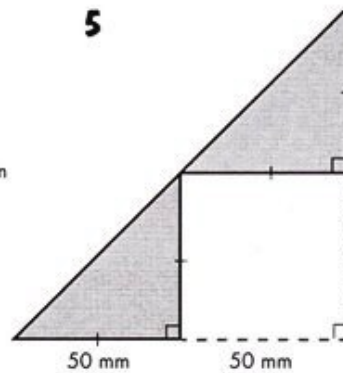
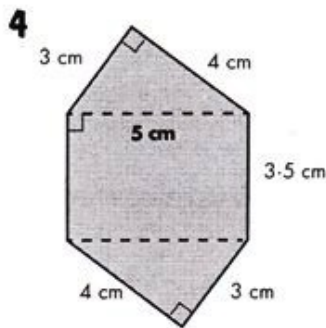
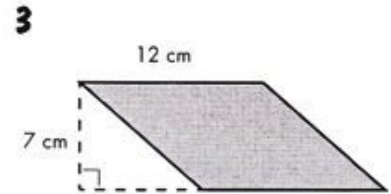
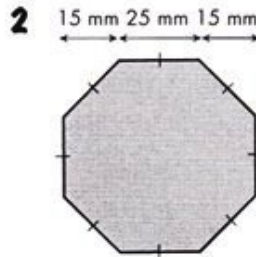
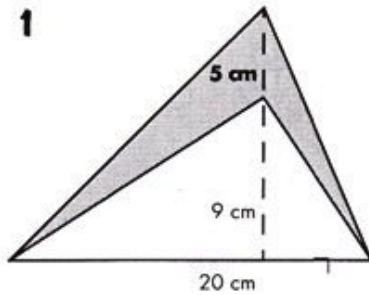
A = _____



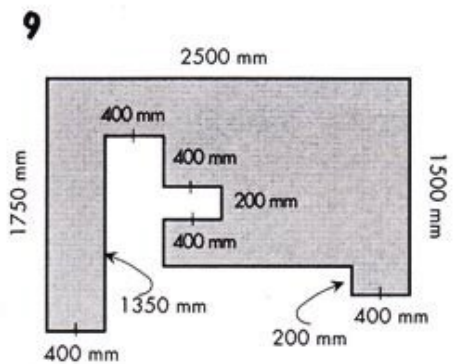
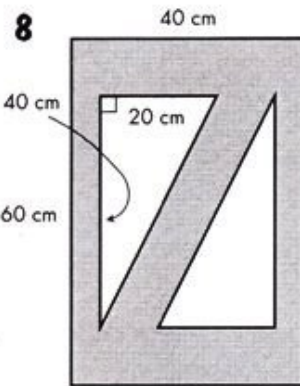
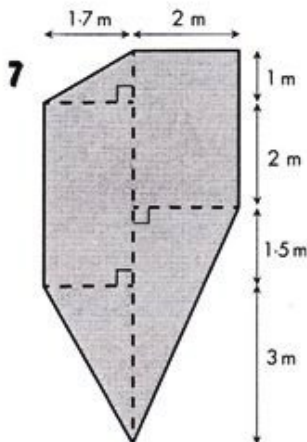
A = _____

7.4 More areas

Find the areas shaded in the figures below. All these areas can be found if you know how to find the area of a rectangle and the area of a triangle.



The shaded path is 1 m wide

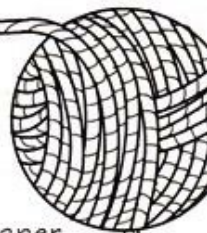


10 A feature wall in a room is 4160 mm long and 2600 mm high. It is to be tiled with tiles 20 cm by 30 cm, which come in boxes of ten. How many boxes of tiles need to be bought?

11 Draw as many triangles as you can with an area of 12 square centimetres.

7.3

A piece of string



You will need a piece of string 1 m long, a ruler and 1 centimetre grid paper.

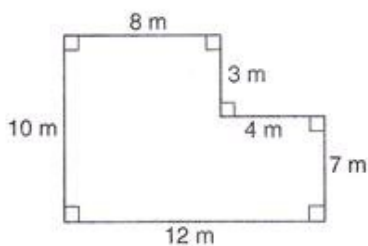
- 1** Make a square with your metre of string.
 - a** How long is one of the sides? _____ cm
 - b** What is the area of your square? _____ cm^2
- 2** Make a rectangle with your metre of string.
 - a** How long are the sides of your rectangle? _____ cm
 - b** What is the area of your rectangle? _____ cm^2
 - c** Is this the only rectangle you can make? _____
- 3** Make an equilateral triangle with your metre of string.
 - a** How long is each side of your triangle? _____ cm
 - b** What is the area of your triangle? _____ cm^2
- 4** Make an isosceles triangle with your metre of string.
 - a** What are the lengths of the sides of your triangle? _____ cm
 - b** What is the area of your triangle? _____ cm^2
 - c** There is more than one possible isosceles triangle. Find some others and work out their areas. _____
 - d** Which triangle gives the largest area? _____
- 5** Make a rhombus with your metre of string.
 - a** How long is each side of your rhombus? _____ cm
 - b** What is the area of your rhombus? _____ cm^2
 - c** There is more than one possible rhombus. Find some others and work out their areas. _____
 - d** Which rhombus gives the largest area? _____
- 6** Make a regular hexagon with your metre of string.
 - a** How long is each side of your hexagon? _____ cm
 - b** What is the area of your hexagon? _____ cm^2
- 7** Make a circle with your metre of string.
 - a** What is the diameter of your circle? _____ cm
 - b** Estimate the area of your circle using grid paper. _____ cm^2
- 8** Compare the areas of the different shapes you have made.
 - a** Which shape has the largest area? _____
 - b** Which shape has the smallest area? _____
- 9** All these shapes have the same perimeter.
 - a** List your shapes in order from the largest area to the smallest area.

 - b** What conclusions can you draw from your results about the relationship between perimeter and area?

12:03 | Area of a Triangle

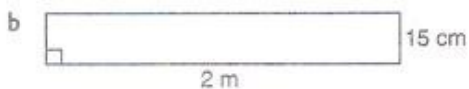
Outcome MS 4.1

3

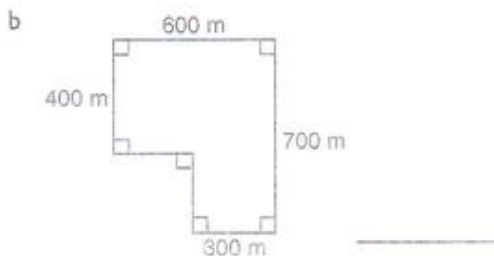


- a Add a dashed line to divide this shape into two rectangles.
 b Calculate the area of the whole shape.

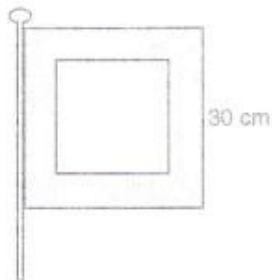
4 In this question, make sure you work with both sides in the *same* units. Calculate the areas of these rectangles. Give your answers in cm^2 .



5 Calculate the areas of these parks in ha.



6

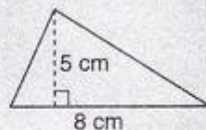


This square flag measures 30 cm by 30 cm. The shaded part is 4 cm wide from edge to edge everywhere. Calculate the area of material needed for the white part. _____

The area of a triangle is calculated from the rule 'half base times height'.

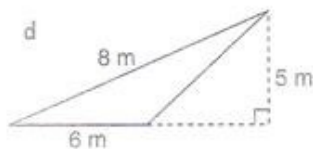
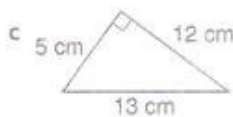
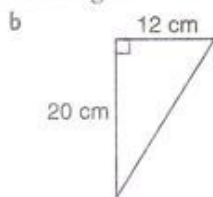
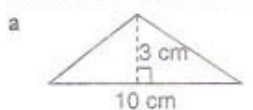
$$A = \frac{1}{2}(b \times h)$$

Example: What is the area of this triangle?



$$\begin{aligned} A &= \frac{1}{2}(b \times h) \\ &= \frac{1}{2}(8 \times 5) = \frac{1}{2} \times 40 \\ &= 20 \text{ cm}^2 \end{aligned}$$

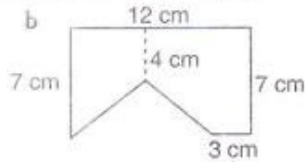
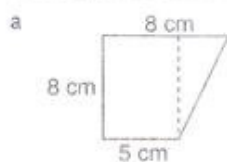
1 Calculate the areas of these triangles.



2 A triangle has a base of 8 cm and a height of 9 cm. What is its area? _____

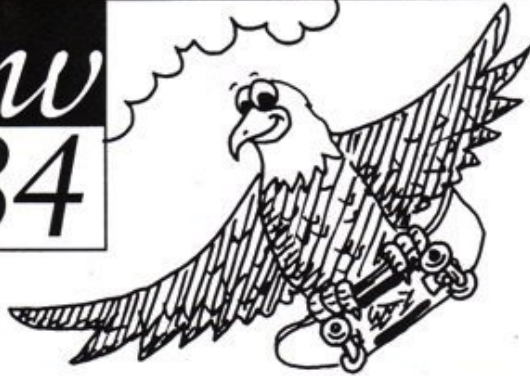
3 A triangle has an area of 60 cm^2 and a base length of 15 cm. What is its height? _____

4 By adding/subtracting areas of triangles and rectangles, determine the areas of these shapes.



name: _____

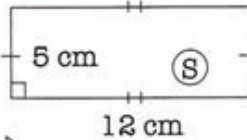
hw
34



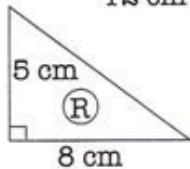
What is big, has four wheels and flies?

Answer the questions to find the solution code.

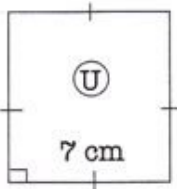
FIND THE NUMBER OF SQUARE CM IN THESE FIGURES.



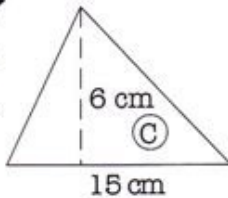
Area = _____ × _____
= _____ cm²



Area = _____ × _____ × _____
= _____ cm²



Area = _____
= _____ cm²



Area = _____ × _____ × _____
= _____ cm²

SOLVE THESE EQUATIONS:

12 + U = 47

U = _____

32 = 50 - H

H = _____

WHEN a = 2, b = 3 and c = 5
FIND THE VALUE OF THESE:

abc = _____ × _____ × _____
= _____ = (B)

4b + 2c = _____ + _____
= _____ = (T)

10bc + a = _____ × _____ × _____
= _____ = (A)

b³ = _____ × _____ × _____
= _____ = (I)

$\sqrt{2a + 12c}$ = $\sqrt{\text{_____} + \text{_____}}$
= $\sqrt{\text{_____}}$
= _____ = (R)

a + b + c = _____ + _____ + _____
= _____ = (K)

a² + b² + c² = _____ + _____ + _____
= _____ = (B)

75	8	49	38	30	27	60	18	22	20	35	45	10
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