



Warm Up Grade 7

1 cm = 10mm

1 m = 100 cm

1 km = 1000 m



Complete the following:

a) 120 cm = 1.2 m

b) 8.5 cm = 85 mm

c) 3.8 km = 3800 m

d) 20 m = 20 000 mm

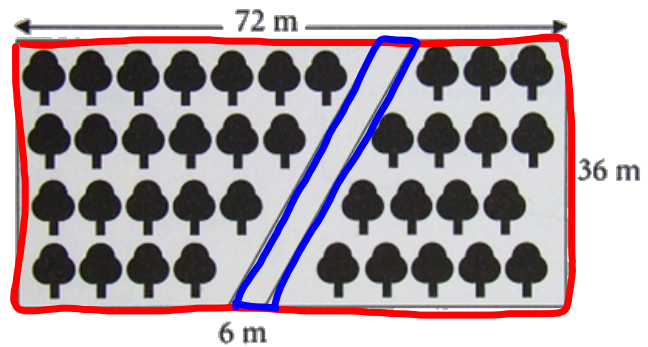
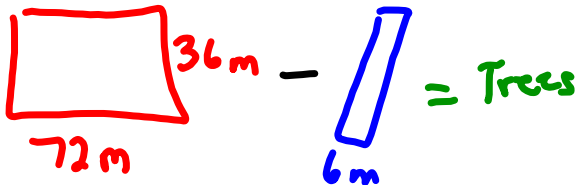
e) 130 mm = 13 cm

f) 56 mm = 0.056 m

20 m = 2000 cm = 20000 mm

56 mm = 5.6 cm = 0.056 m

#2) Jamie makes a road through his wooded lot.
What is the area of the part of the lot that has trees?
Show your work.



$A_{\square} = b \times h$
 $= 72m \times 36m$
 $= 2592m^2$

$2592m^2 - 216m^2$

$A_{\parallel} = b \times h$
 $= 6m \times 36m$
 $= 216m^2$

$= 2376m^2$
 2376m² Is the area of the trees.

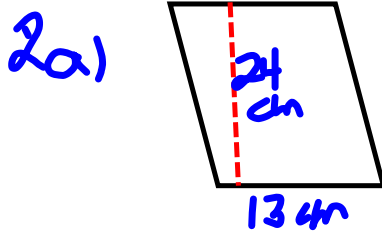
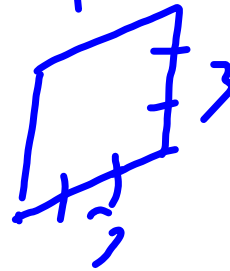
Homework Solutions

pg. 141 # 1-10

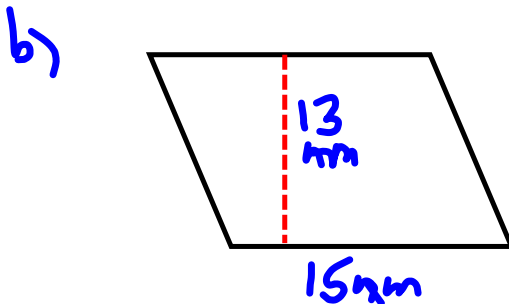
$$1a) A = b \times h \\ = 5 \times 4 \\ = 20 \text{ cm}^2$$

$$b) A = b \times h \\ = 3 \times 3 \\ = 9$$

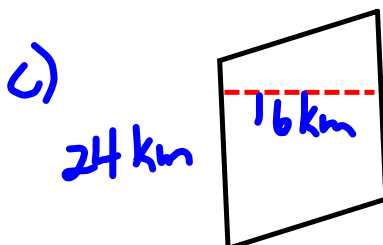
$$c) A = b \times h \\ = 6 \times 5 \\ = 30$$



$$A = b \times h \\ = 13 \times 24 \\ = 312 \text{ cm}^2$$

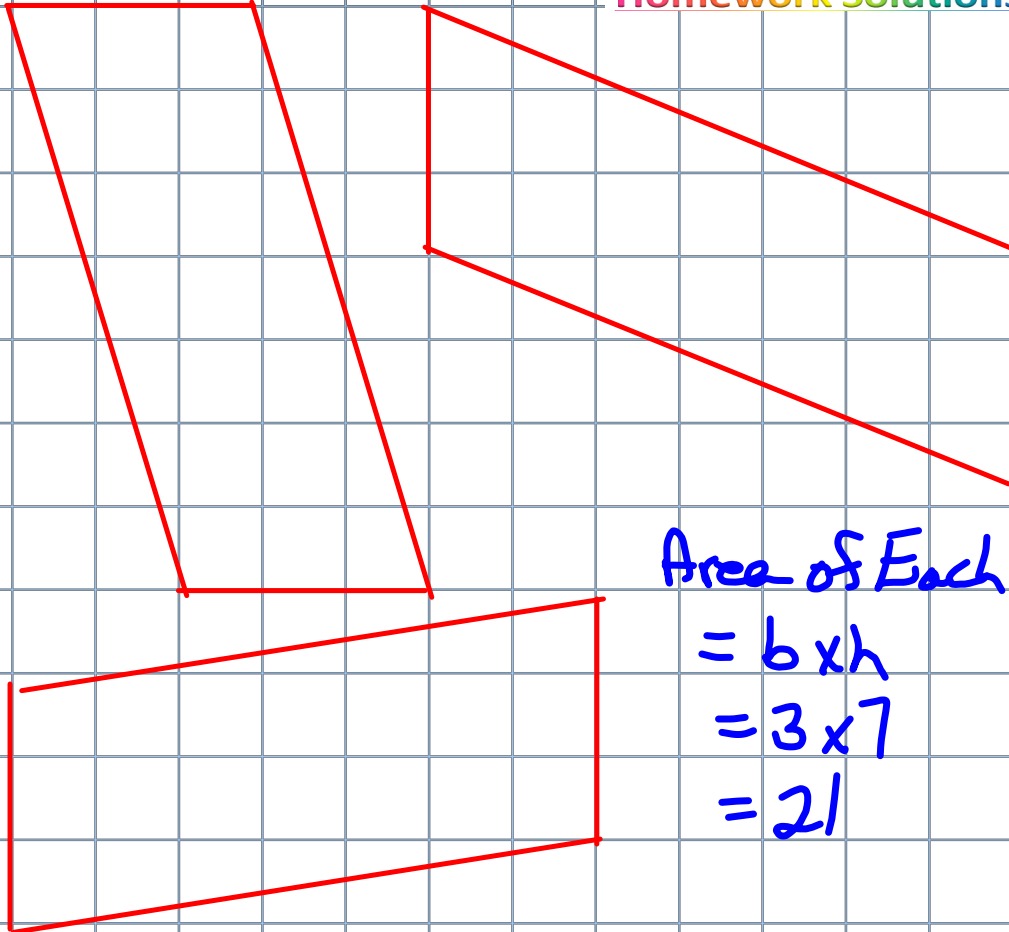


$$A = b \times h \\ = 15 \times 13 \\ = 195 \text{ mm}^2$$



$$A = b \times h \\ = 24 \times 16 \\ = 384 \text{ km}^2$$

Homework Solutions



Area of Each Parallelogram
 $= b \times h$
 $= 3 \times 7$
 $= 21$

They all have the same area

3. (a)
 (b)

$h = 7\text{cm}$
 $A = b \times h$
 $A = 3 \times 7$
 $A = 21\text{cm}^2$

$h = 7\text{cm}$
 $A = b \times h$
 $A = 3 \times 7$
 $A = 21\text{cm}^2$

$h = 7\text{cm}$
 $A = b \times h$
 $A = 3 \times 7$
 $A = 21\text{cm}^2$

$b = 3\text{cm}$

5.

Homework Solutions

5.

2cm

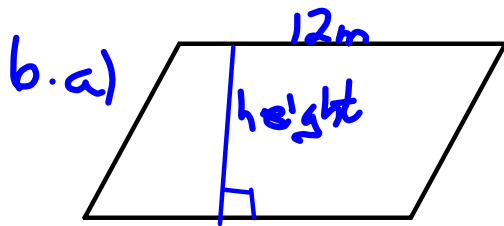
5cm

h=5cm

b=2cm

$$A = b \times h$$
$$A = 5\text{cm} \times 2\text{cm}$$
$$A = 10\text{cm}^2$$

Homework Solutions



$$A = 60 \text{ m}^2 \quad A = b \times h$$

$$60 = b \times h$$

$$60 = 12 \times \underline{\quad}$$

$$12 \times 5$$

$$h = 5 \text{ m}$$

b) $A = 6 \text{ mm}^2 \quad h = 2 \text{ mm}$

$$b = b \times h$$

$$6 = b \times 2$$

$$b = 3 \text{ mm}$$

c) $A = 30 \text{ cm}^2 \quad h = 5$

$$A = b \times h$$

$$30 = b \times 5$$

$$b = 6 \text{ cm}$$

6. (a) Area = 60 m^2

$h = A \div b$
 $h = 60 \text{ m}^2 \div 12 \text{ m}$
 $h = 5 \text{ m}$

(b) Area = 6 mm^2

$b = A \div h$
 $b = 6 \text{ mm}^2 \div 2 \text{ mm}$
 $b = 3 \text{ mm}$

(c) Area = 30 cm^2

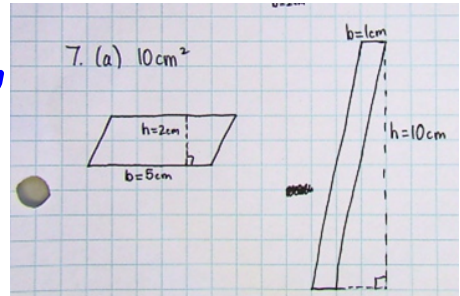
$b = A \div h$
 $b = 30 \text{ cm}^2 \div 5 \text{ cm}$
 $b = 6 \text{ cm}$

7. $A = 10 \text{ cm}^2$

Possible Parallelograms

Base	Height
2	5
5	2
1	10
10	1

Homework Solutions



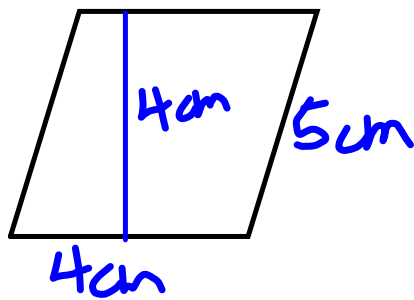
b) $A = 18 \text{ cm}^2$

Base	Height
1	18
18	1
2	9
9	2
3	6
6	3

c) $A = 28 \text{ cm}^2$

Base	Height
1	28
28	1
2	14
14	2
4	7
7	4

8.



Homework Solutions

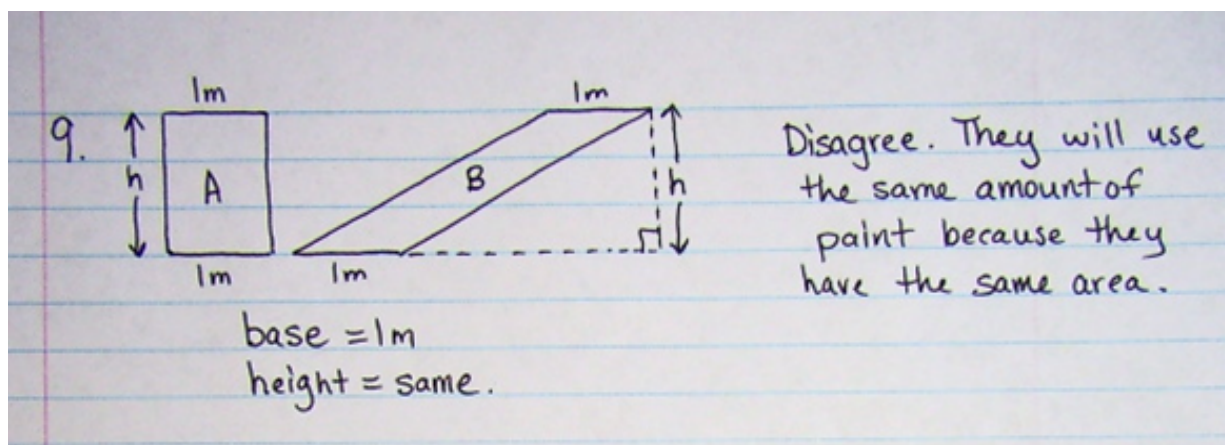
The is not 20cm^2 , the student use the 5 which is the slant height instead of using the perpendicular height.

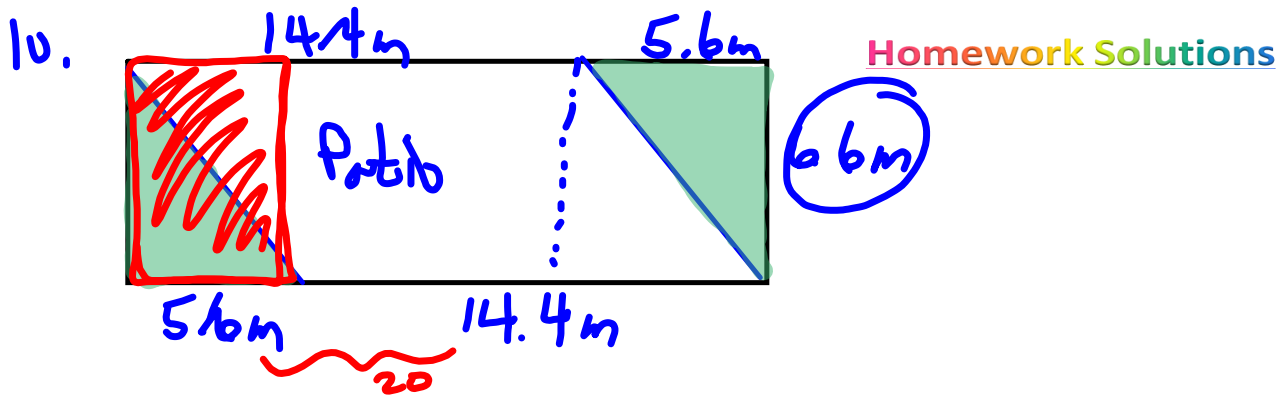
9. They will both need the same amount of paint

$$\begin{aligned} \text{A rectangle} &= b \times h \\ &= l \times h \end{aligned}$$

$$\begin{aligned} \text{A parallelogram} &= b \times h \\ &= l \times h \end{aligned}$$

They both have the same base and height





$$\begin{aligned}
 \text{a) Area of patio} &= b \times h \\
 &= 14.4 \times 6.6 \\
 &= 95.04 \text{ m}^2
 \end{aligned}$$

$$\begin{aligned}
 \text{b) Area of Patio and Garden} &= l \times w \\
 &\text{Rectangle} \\
 &= 20 \times 6.6 \\
 &= 132 \text{ m}^2
 \end{aligned}$$

c) To find the area of the gardens subtract the area of the patio from the total area

$$\begin{array}{r}
 132.00 \\
 - 95.04 \\
 \hline
 36.96
 \end{array}$$

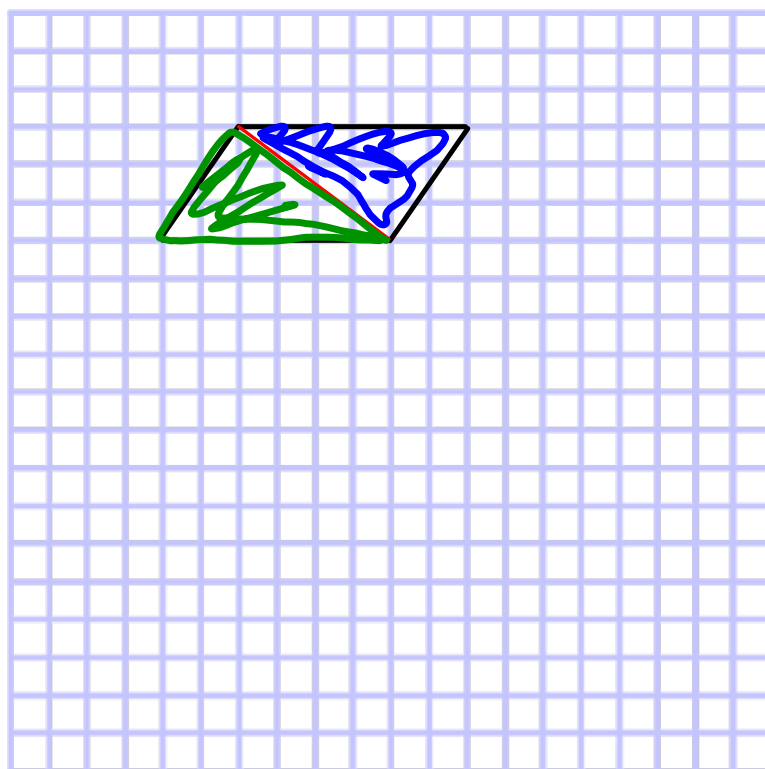
$$\text{Area of Gardens} = 36.96 \text{ m}^2$$

When we draw a diagonal in a parallelogram, we make 2 congruent triangles.

Congruent triangles have the same area.

The area of the two congruent triangles is equal to the area of the parallelogram.

So, the area of one triangle is $\frac{1}{2}$ the area of the parallelogram.



All rectangles or parallelograms can be split into two equal triangles.
The formula to find the Area of a rectangle or parallelogram can be Base x Height, so to find the area of a triangle half its size would have to be

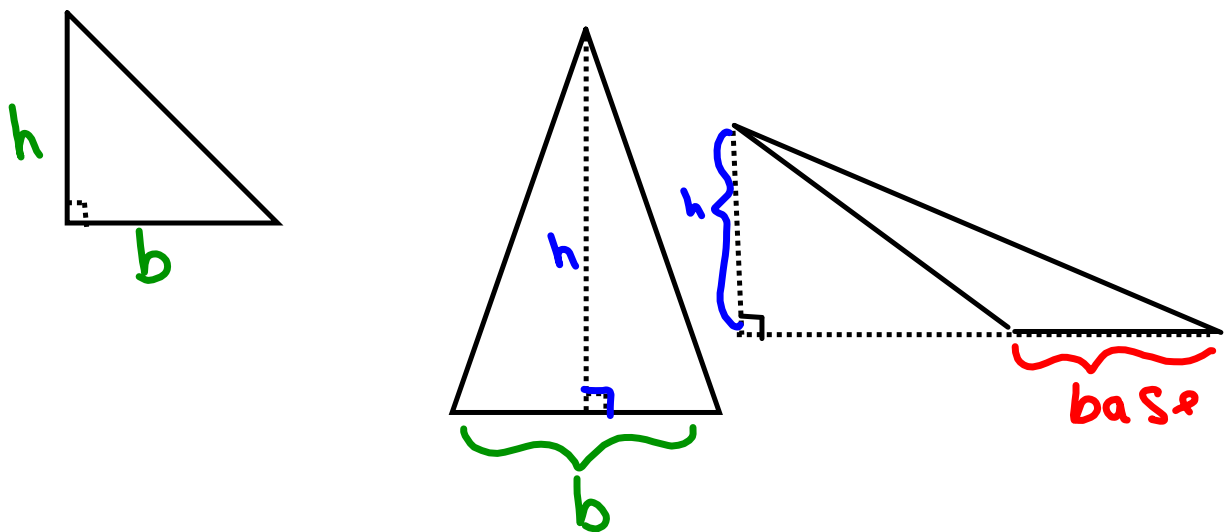
$$\text{Area of Triangle} = \frac{\text{Base} \times \text{Height}}{2}$$

TRIANGLES

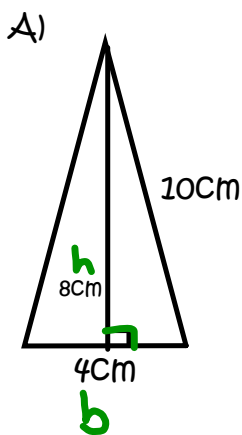
All triangles have three sides and three angles.

Any side of a triangle can be its base.

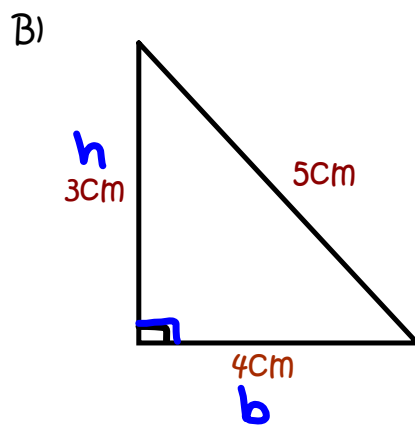
The height of the triangles must be perpendicular to its base and must intersect the vertex opposite the base.



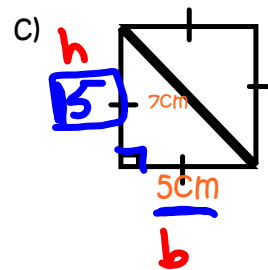
Find the Area for each of the following triangles:



$$\begin{aligned}
 A_{\Delta} &= \frac{b \times h}{2} \\
 &= \frac{4\text{cm} \times 8\text{cm}}{2} \\
 &= \frac{32\text{cm}^2}{2} \\
 &= 16\text{cm}^2
 \end{aligned}$$

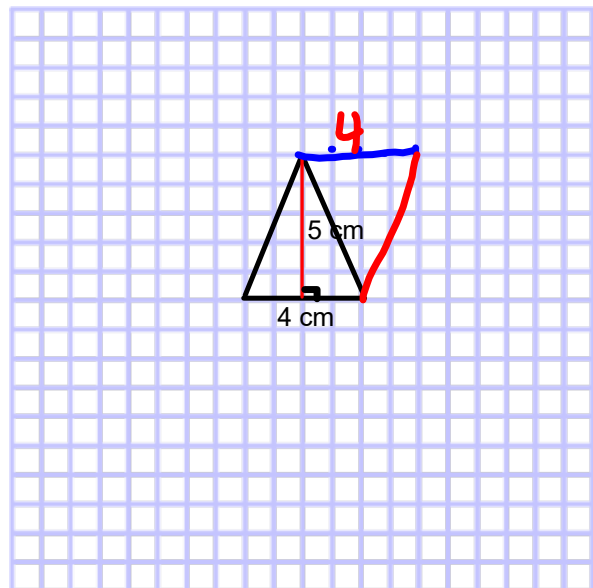
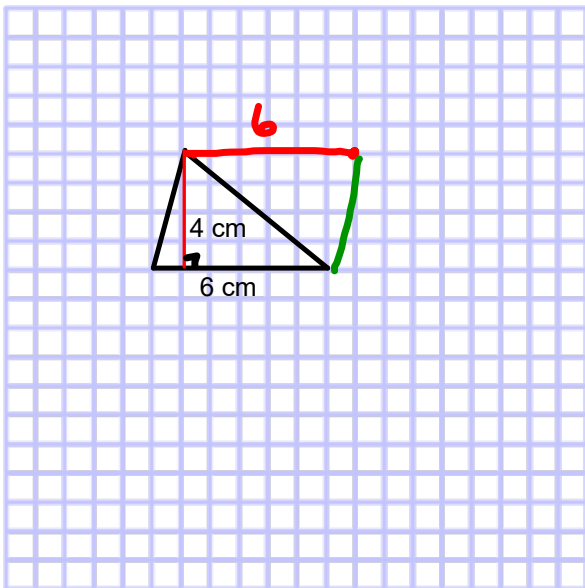


$$\begin{aligned}
 A_{\Delta} &= \frac{b \times h}{2} \\
 &= \frac{4\text{cm} \times 3\text{cm}}{2} \\
 &= \frac{12\text{cm}^2}{2} \\
 &= 6\text{cm}^2
 \end{aligned}$$



$$\begin{aligned}
 A_{\Delta} &= \frac{b \times h}{2} \\
 &= \frac{5\text{cm} \times 5\text{cm}}{2} \\
 &= \frac{25\text{cm}^2}{2} \\
 &= 12.5\text{cm}^2
 \end{aligned}$$

Copy each triangle on graph paper.
 Draw a related parallelogram.



Class / Homework

Pg 145

#1 abc → Just Do $A_{\Delta} = \frac{b \times h}{2}$
Don't Draw

#2 abc

#4 a

$$\frac{(\) \times (\)}{2}$$

$$= \frac{(\)}{2}$$

1a) $b = 5$
 $h = 3$
 $A = ?$

$$A_{\Delta} = \frac{b \times h}{2}$$

$$\frac{5 \times 3}{2}$$

$$= \frac{15}{2}$$

$$= 7.5 \text{ unit}^2$$

Use Mental Math:

1. $15 \times 7 \times 2 \times 3 =$

2. $90 - 31 =$

3. 45% of 60 =

$$2a. \quad A = \frac{b \times h}{2}$$

$$A = \frac{7 \times 6}{2}$$

$$A = \frac{42}{2}$$

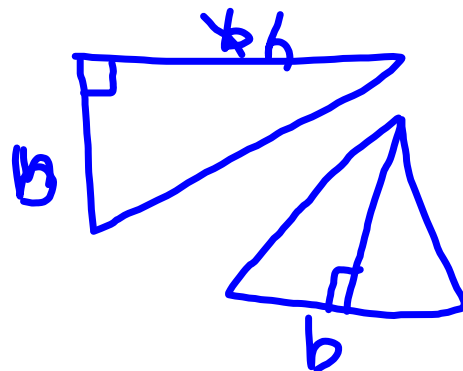
$$A = 21 \text{ cm}^2$$

$$b. \quad A = \frac{5 \times 5}{2}$$

$$A = \frac{25}{2}$$

$$A = 12.5 \text{ cm}^2$$

c. A:

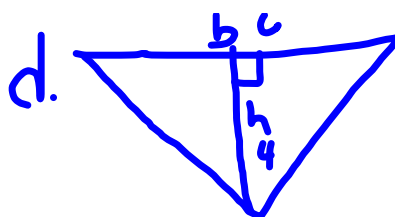


$$c. \quad A = \frac{b \times h}{2}$$

$$A = \frac{6 \times 4}{2}$$

$$A = \frac{24}{2}$$

$$A = 12 \text{ cm}^2$$



$$A = \frac{6 \times 4}{2}$$

$$A = 12 \text{ cm}^2$$

$$e. A = \frac{5 \times 4}{2}$$

$$A = \frac{20}{2}$$

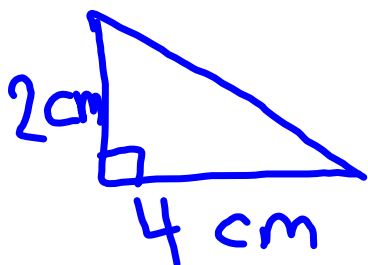
$$A = 10 \text{ cm}^2$$

$$A = \frac{b \times h}{2}$$

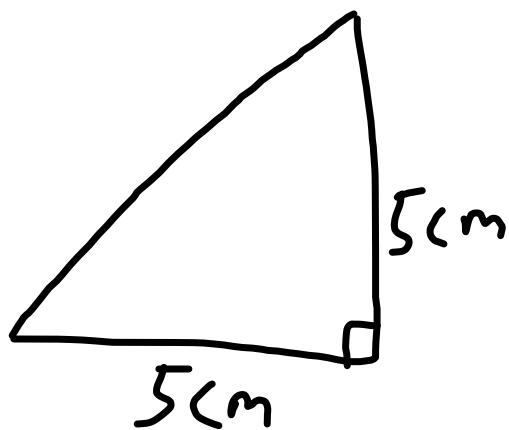
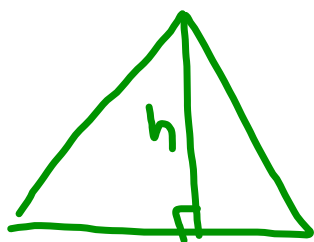
$$A = \frac{1}{2} b \times h$$

$$f. A = \frac{4 \times 4}{2}$$

$$A = 8 \text{ cm}^2$$

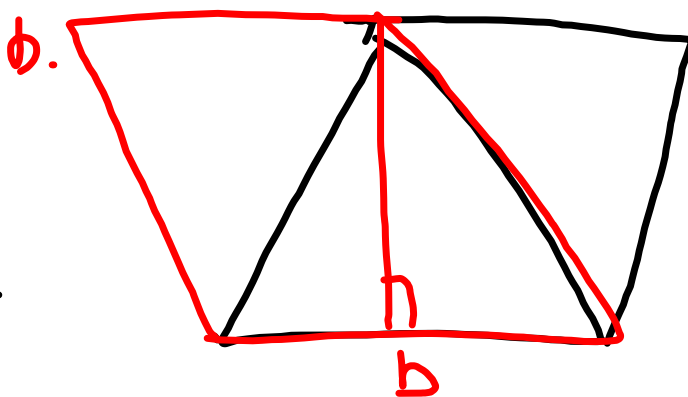


$$\begin{aligned} A &= \frac{b \times h}{2} \\ &= \frac{4 \times 2}{2} \\ &= \frac{8}{2} \\ &= 4 \text{ cm}^2 \end{aligned}$$



$$\begin{aligned} A &= \frac{B \times H}{2} & A &= 12.5 \text{ cm}^2 \\ &= \frac{5 \times 5}{2} \\ &= \frac{25}{2} \end{aligned}$$

$$4a \quad A = \frac{b \times h}{2}$$
$$A = \frac{7 \times 6}{2}$$
$$A = \frac{42}{2}$$
$$A = 21 \text{cm}^2$$



c.

$$A = b \times h$$
$$A = 6 \times 7$$
$$A = 42 \text{cm}^2$$

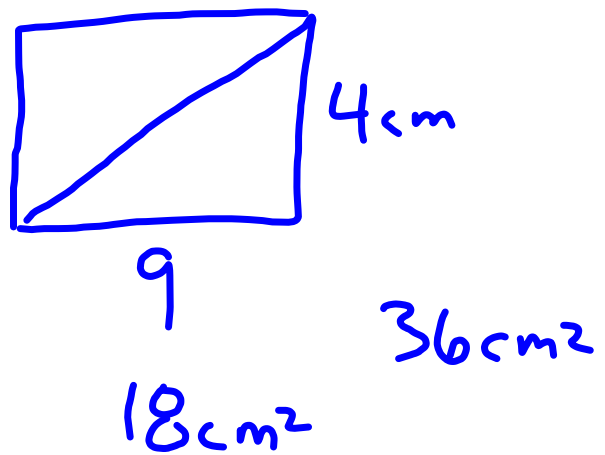
$$S_a = A = 18 \text{ cm}^2$$
$$b = 9 \text{ cm}$$

$$A = \frac{b \times h}{2}$$

$$(2 \times) 18 = \frac{9 \times h}{2} (2 \times)$$

$$36 = 9 \times h$$

$$4 \text{ cm} = h$$



$$b. \quad A = 32$$

$$h = 4$$

$$A = \frac{b \times h}{2}$$

$$32 = \frac{b \times 4}{2}$$

$$64 = b \times 4$$

$$16_m = b$$

$$C.A. = 480m^2 \quad (32m)$$

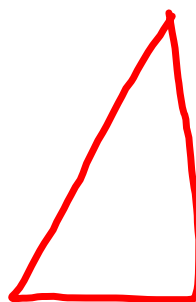
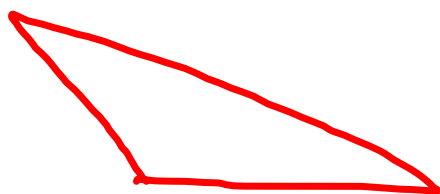
$$b = 30m$$

$$480m^2 = \frac{b \times h}{2}$$

$$960m^2 = 30 \times h$$

$$32m = h$$

6a. i) 6cm^2
ii) 6cm^2
iii) 6cm^2



7. a) $2b \times 14h$
b) $2b \times 10h$
c) $2b \times 8h$