



Warm Up Grade 7
Lesson 4



1 cm = 10 mm
1 m = 100 cm
1 km = 1000 m

Complete the following:

a) 120 cm = _____ m

d) 20 m = _____ mm

b) 8.5 cm = _____ mm

e) 130 mm = _____ cm

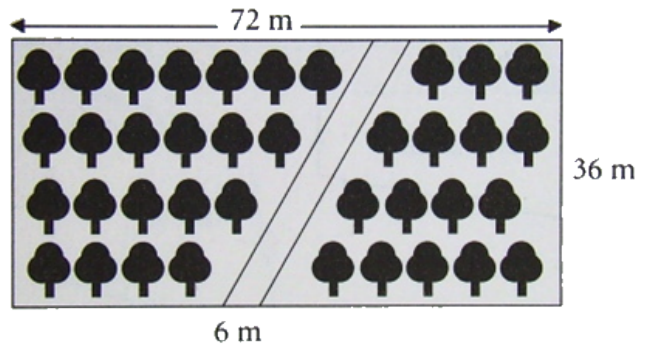
c) 3.8 km = _____ m

f) 56 mm = _____ 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.





Warm Up Grade 7

Solutions



$1 \text{ cm} = 10 \text{ mm}$
 $1 \text{ m} = 100 \text{ cm}$
 $1 \text{ km} = 1000 \text{ m}$

Complete the following:

a) $120 \text{ cm} = \underline{1.2} \text{ m}$
(Handwritten: red arrow from 120 to 1.2 with +100)

b) $8.5 \text{ cm} = \underline{85} \text{ mm}$
(Handwritten: green arrow from 8.5 to 85 with x10)

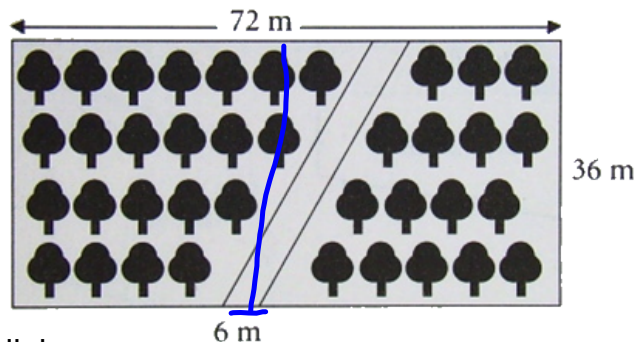
c) $3.8 \text{ km} = \underline{3800} \text{ m}$
(Handwritten: green arrow from 3.8 to 3800 with x1000)

d) $20 \text{ m} = \underline{20\,000} \text{ mm}$
(Handwritten: green arrows from 20 to 20000 with x100 x10)

e) $130 \text{ mm} = \underline{13} \text{ cm}$
(Handwritten: red arrow from 130 to 13 with :10)

f) $56 \text{ mm} = \underline{0.056} \text{ m}$
(Handwritten: purple arrow from 56 to 0.056 with :1000, blue arrow from 56 to 0.056 with :100)

#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.



Total area = $b \times h$
 $= 72 \text{ m} \times 36 \text{ m}$
 $= 2592 \text{ m}^2$

Area of path = $b \times h$ since it's a parallelogram
 $= 6 \text{ m} \times 36 \text{ m}$
 $= 216 \text{ m}^2$

Tree area = Total - path
 $= 2592 \text{ m}^2 - 216 \text{ m}^2$
 $= 2376 \text{ m}^2$

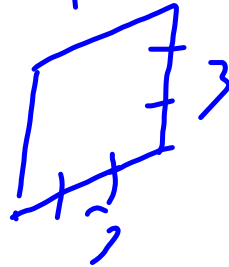
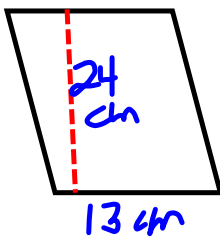
Homework Solutions

OUR questions were the ones with the stars beside them

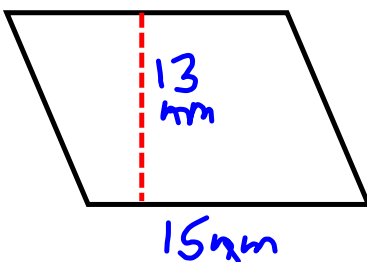
$$1) a) A = b \times h \\ = 5 \times 4 \\ = 20 \text{ cm}^2$$

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

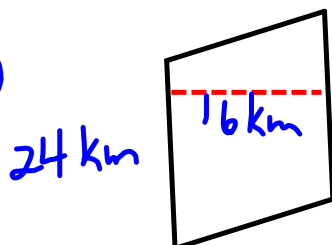
$$c) A = b \times h \\ = 6 \times 5 \\ = 30$$

★
2a)

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

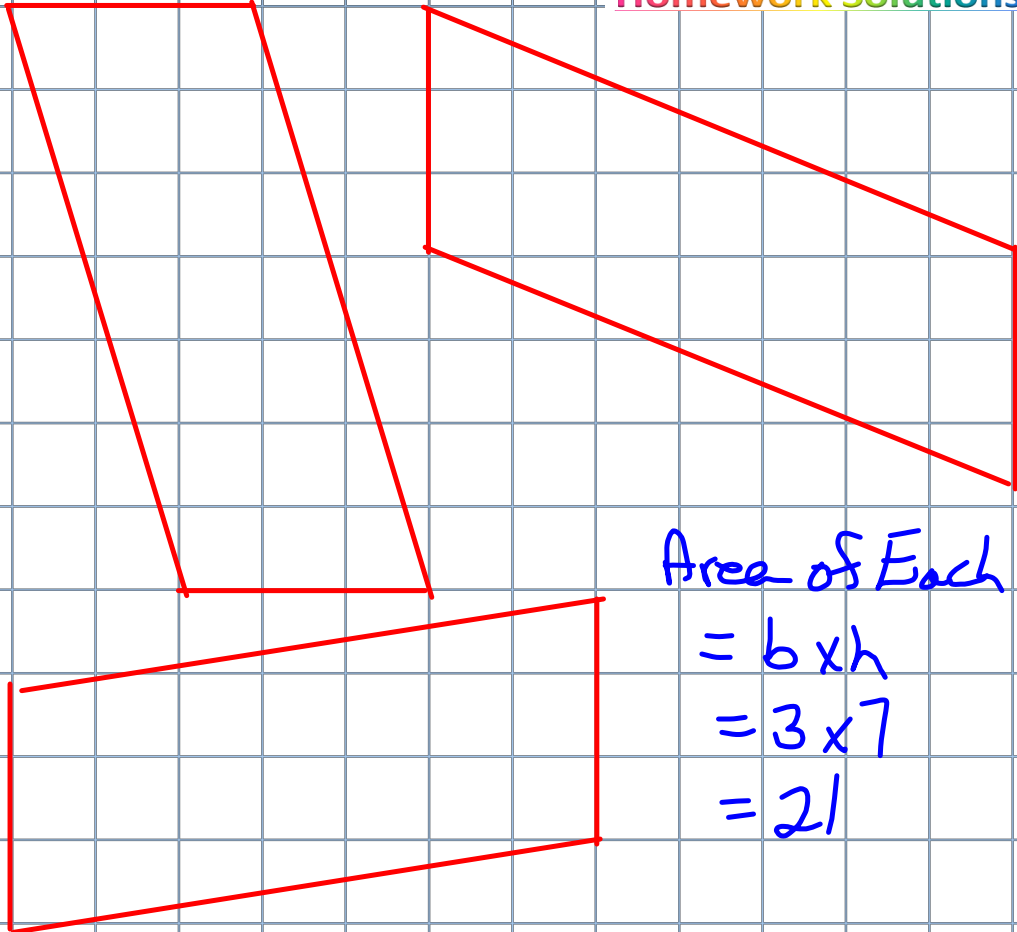
★
b)

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

★
c)

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

Homework Solutions



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

They all have the same area

3. (a)
 (b)

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

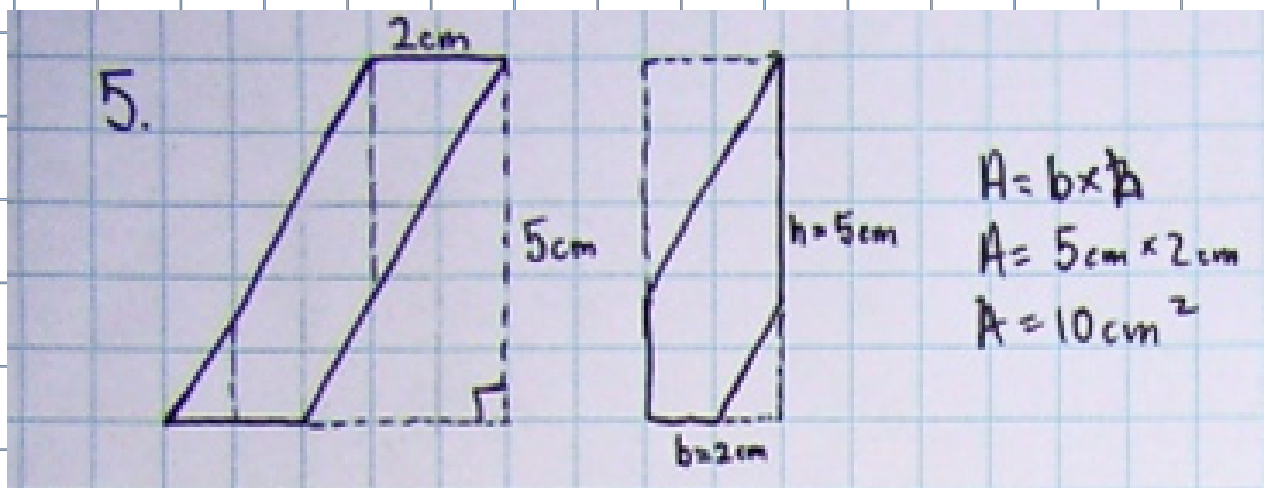
$h=7\text{cm}$
 $A=b \times h$
 $A=3 \times 7$
 $A=21\text{cm}^2$

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

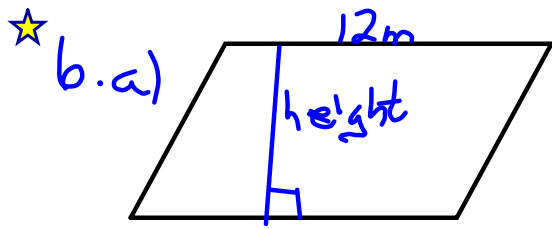
$b=3\text{cm}$

5.

Homework Solutions



Homework Solutions



$A = 60m^2$ $A = b \times h$

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

$60 = b \times h$

$60 = 12 \times \underline{\quad}$
 12×5

$h = 5m$

★ b) $A = 6mm^2$ $h = 2mm$

$b = b \times h$

$b = b \times 2$

$b = 3mm$

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

$b = \frac{6mm^2}{2mm}$

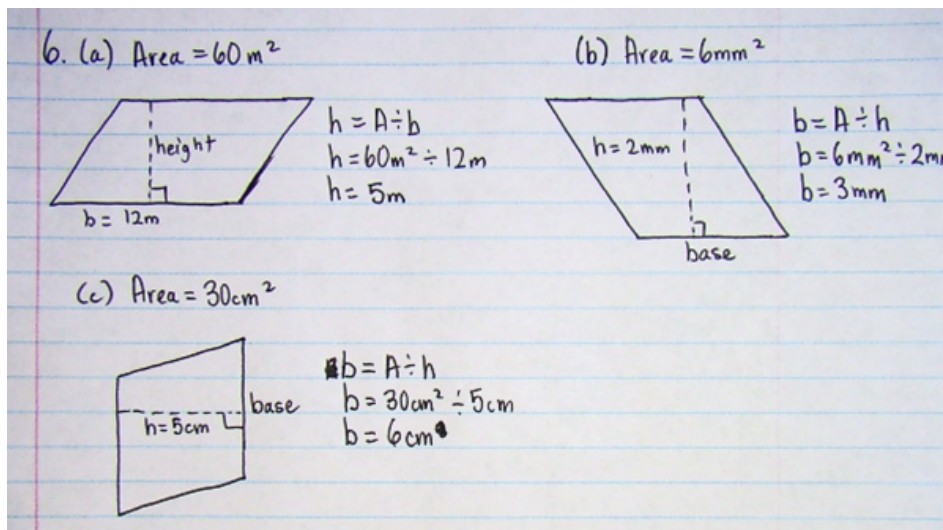
$b = 3mm$

★ c) $A = 30cm^2$ $h = 5$

$A = b \times h$

$30 = b \times 5$

$b = 6cm$

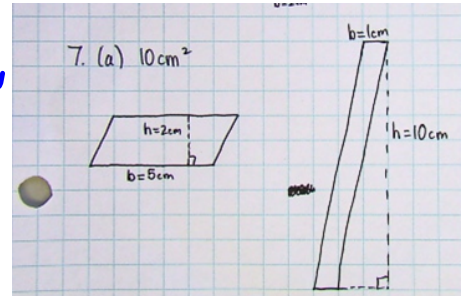


7. $A = 10 \text{ cm}^2$

Possible Parallelograms

Base	Height
2	5
5	2
1	10
10	1

Homework Solutions



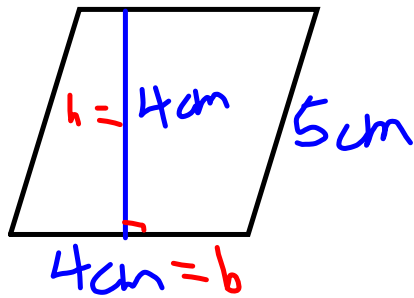
b) $A = 18 \text{ cm}^2$

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

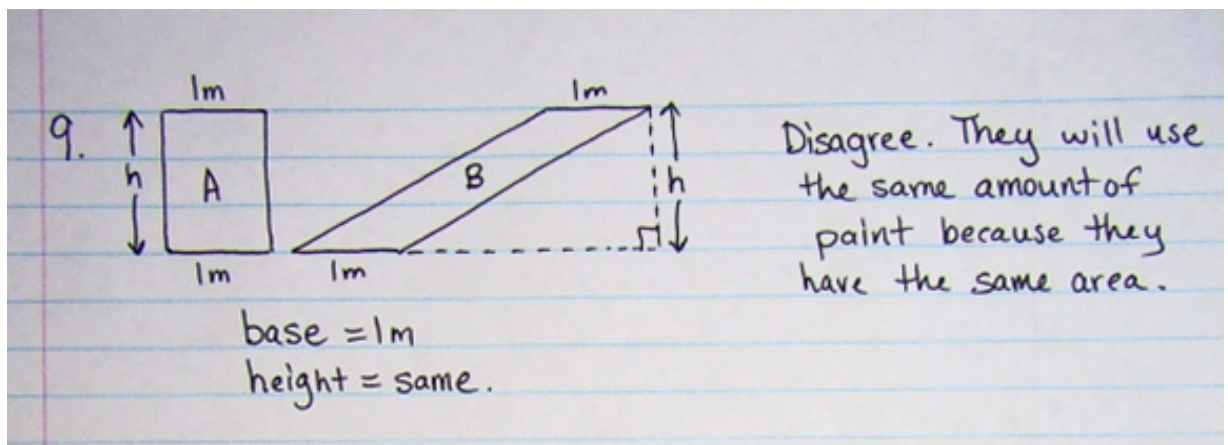
The is not 20cm^2 , the student use the 5 which is the slant height instead of using the perpendicular height.

9. They will both need the same amount of paint

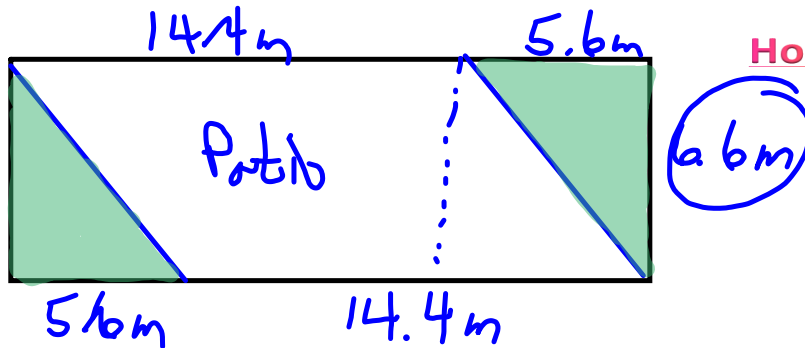
$$\begin{aligned} \text{A rectangle} &= b \times h \\ &= l \times h \end{aligned}$$

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

They both have the same base and height



10.



Homework Solutions

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

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

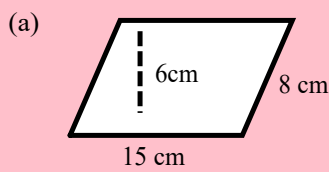
c) To find the area of the gardens subtract the area of the patio from the total area

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

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

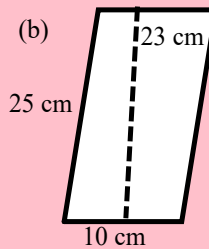
Solutions to pink slide

Find the perimeter and area of each of the following:



$$\begin{aligned} \text{Per} &= s + s + s + s \\ &= 15 + 8 + 15 + 8 \\ &= 46 \text{ cm} \end{aligned}$$

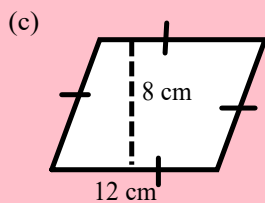
$$\begin{aligned} A &= b \times h \\ &= 15 \times 6 \\ &= 90 \text{ cm}^2 \end{aligned}$$



$$\begin{aligned} P &= s + s + s + s \\ &= 25 + 10 + 25 + 10 \\ &= 70 \text{ cm} \end{aligned}$$

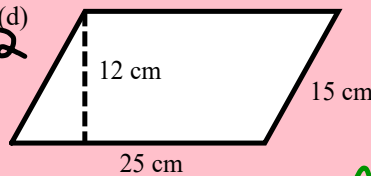
$$\begin{aligned} A &= b \times h \\ &= 10 \times 23 \\ &= 230 \text{ cm}^2 \end{aligned}$$

😊



$$\begin{aligned} P &= s + s + s + s \\ &= 12 + 12 + 12 + 12 \\ &= 48 \text{ cm} \end{aligned}$$

$$\begin{aligned} A &= b \times h \\ &= 12 \times 8 \\ &= 96 \text{ cm}^2 \end{aligned}$$



$$\begin{aligned} P &= s + s + s + s \\ &= 25 + 15 + 25 + 15 \\ &= 80 \text{ cm} \end{aligned}$$

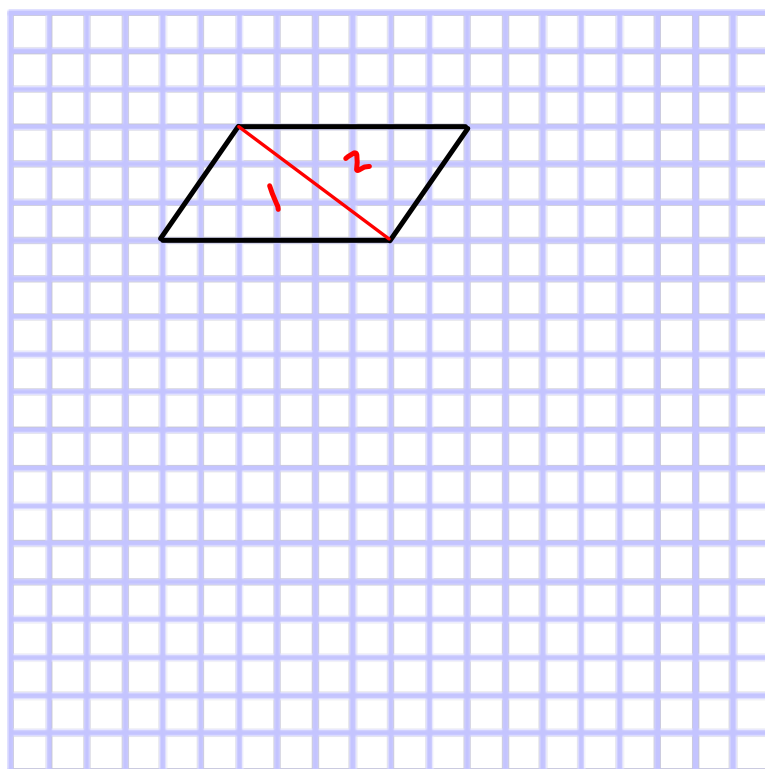
$$\begin{aligned} A &= b \times h \\ &= 25 \times 12 \\ &= 300 \text{ cm}^2 \end{aligned}$$

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

Study

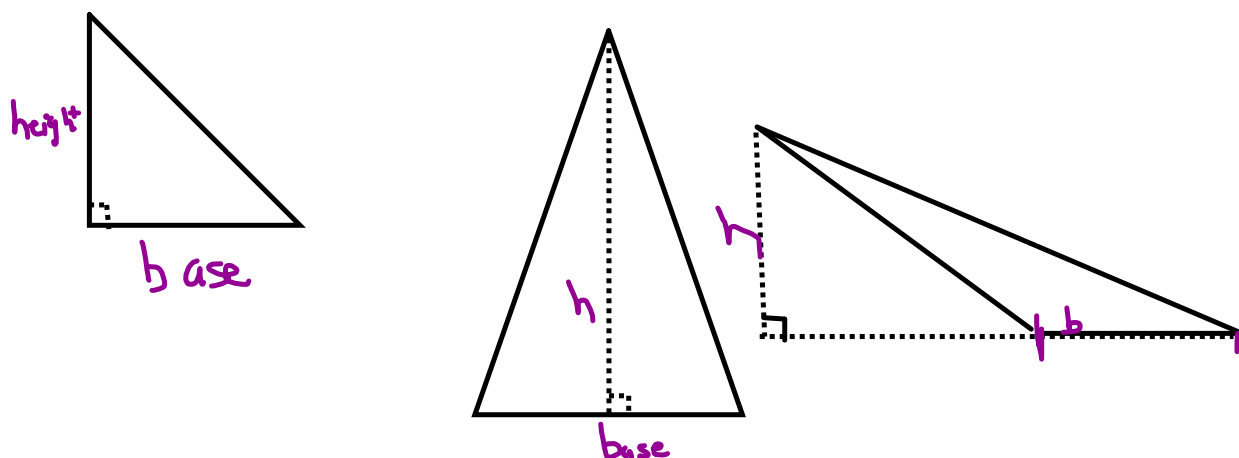
$$\text{Area of Triangle} = \frac{\text{Base} \times \text{Height}}{2}$$

~~TRIANGLES~~

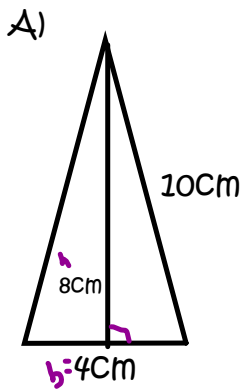
All triangles have three sides and three angles.

Any side of a triangle can be its base.

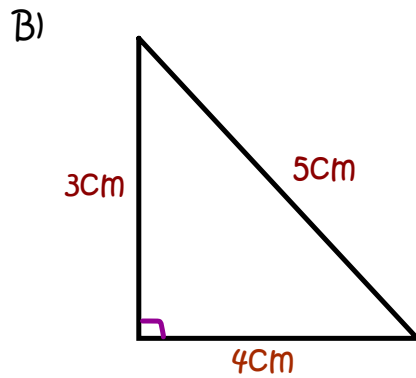
The height of the triangles must be perpendicular to its base and must intersect the vertex opposite the base.



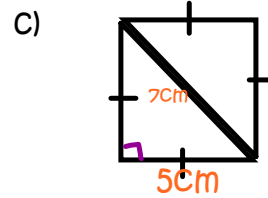
Find the Area for each of the following triangles:



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

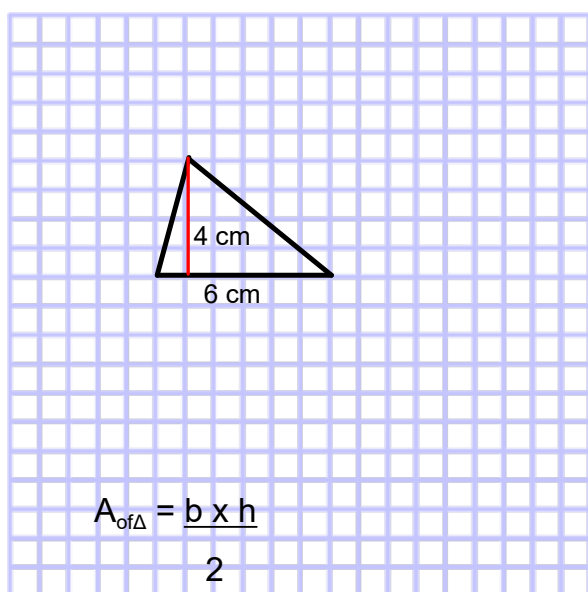


$$\begin{aligned}
 A_{\text{of}\Delta} &= \frac{b \times h}{2} \\
 &= \frac{4 \text{ cm} \times 3 \text{ cm}}{2} \\
 &= \frac{12 \text{ cm}^2}{2} \\
 &= 6 \text{ cm}^2
 \end{aligned}$$



$$\begin{aligned}
 A_{\text{of}\Delta} &= \frac{b \times h}{2} \\
 &= \frac{5 \text{ cm} \times 7 \text{ cm}}{2} \\
 &= \frac{35 \text{ cm}^2}{2} \\
 &= 17.5 \text{ cm}^2
 \end{aligned}$$

Each triangle on graph paper.
Find the area.



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

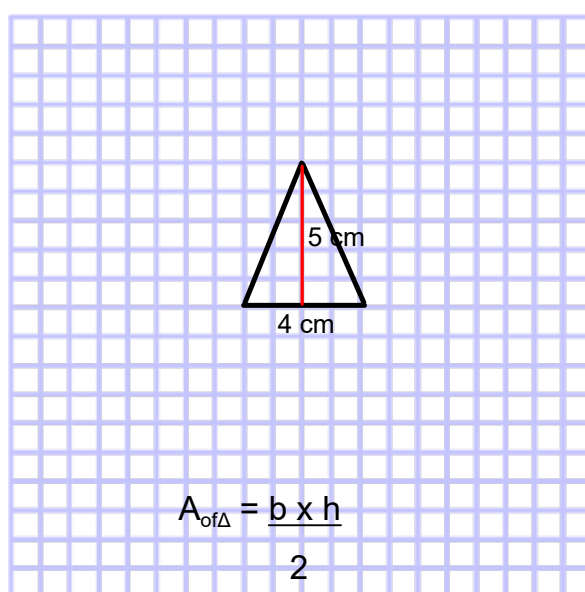
$$= \frac{4 \text{ cm} \times 6 \text{ cm}}{2}$$

2

$$= \frac{24 \text{ cm}^2}{2}$$

2

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



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

$$= \frac{4 \text{ cm} \times 5 \text{ cm}}{2}$$

2

$$= \frac{20 \text{ cm}^2}{2}$$

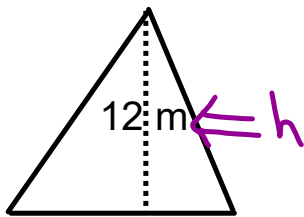
2

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

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

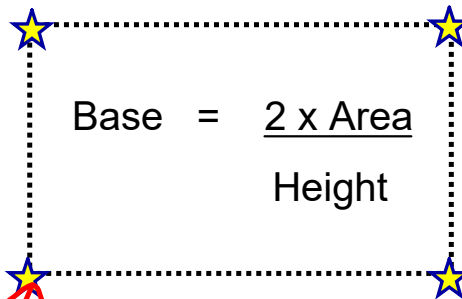
Find the base length of the triangle.

$$\text{Area} = 66 \text{ m}^2$$



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

$$66 \text{ m}^2 = \frac{b \times 12}{2}$$



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

$$= \frac{2 \times 66 \text{ m}^2}{12 \text{ m}}$$

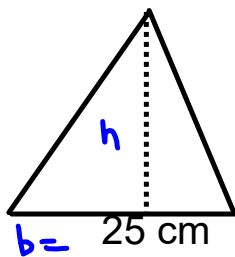
$$= \frac{132 \text{ m}^2}{12 \text{ m}}$$

$$\text{base} = 11 \text{ m}$$

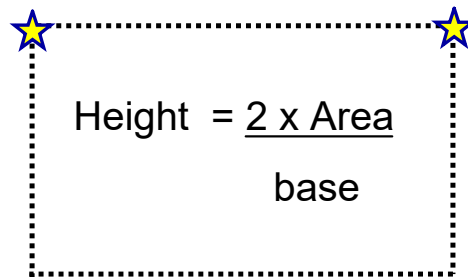
$$\text{Area of Triangle} = \frac{\text{Base} \times \text{Height}}{2}$$

Find the base height of the triangle.

$$\text{Area} = 37.5 \text{ cm}^2$$



\Rightarrow



$$h = \frac{2 \times 37.5 \text{ cm}^2}{25 \text{ cm}}$$
$$= \frac{75 \text{ cm}^2}{25 \text{ cm}}$$

$$h = 3 \text{ cm}$$



Class / Homework

For each just find the area

no using geoboards

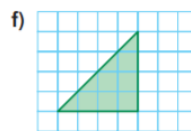
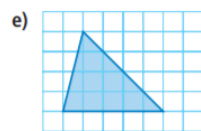
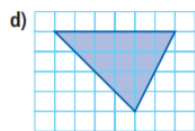
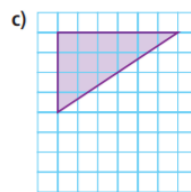
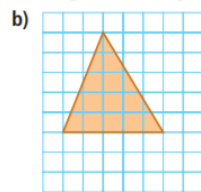
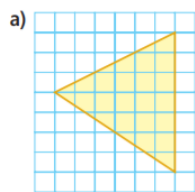
do not use grid paper JUST look at the book
and find the base and height

Page 145 #2 , #4, #5, #9

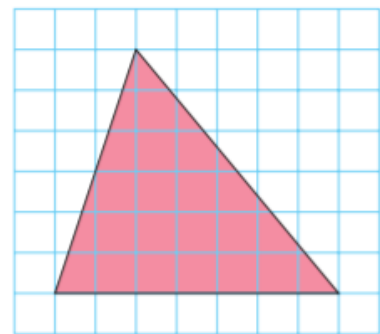
On next slides is a copy of questions Check PDF

2

Find the area of each triangle. Use a geoboard if you can.

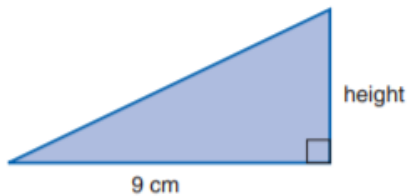


4. a) Find the area of this triangle.
 b) Use 1-cm grid paper.
 How many different parallelograms can you draw that have the same base and the same height as this triangle? Sketch each parallelogram.
 c) Find the area of each parallelogram.
 What do you notice?

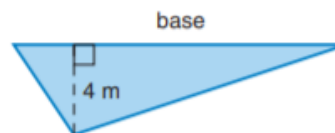


5. Use the given area to find the base or height of each triangle.
 How could you check your answers?

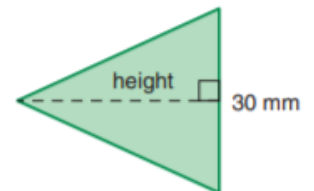
a) Area = 18 cm^2



b) Area = 32 m^2



c) Area = 480 mm^2



9. Assessment Focus

This triangle is made from 4 congruent triangles.

Three triangles are to be painted blue.

The fourth triangle is not to be painted.

a) What is the area that is to be painted?

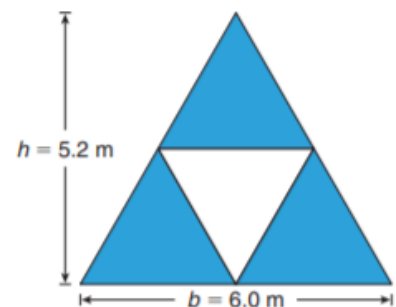
Show your work.

b) The paint is sold in 1-L cans.

One litre of paint covers 5.5 m^2 .

How many cans of paint are needed?

What assumptions did you make?



The height is approximate.