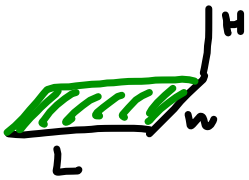
Warm Up Grade 8

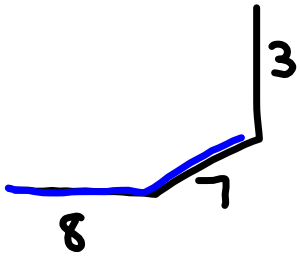
Whenever 3 dimensions are given, they are in the order: length, width and height.

Assessment Review



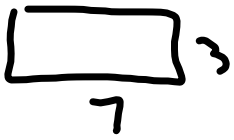
Sarah paints the walls of her bed room. The room measures 8 m by 7 m by 3 m. One can will cover 35 m^2.

a) How much paint should she buy if she needs to put 2 coats on the walls?



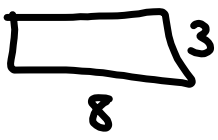
walls

L/R



$A = L \times w$
$= 7 \times 3$
$= 21 m^2$
$\times 2$
$42 m^2$

Fr / Back



$A = L \times w$
$= 8 \times 3$
$= 24 m^2$
$\times 2$
$48 m^2$

Total SA of walls $= 42 m^2 + 48 m^2$
$= 90 m^2$
$\times 2$ coats of paint
$180 m^2$ for paint

$\#\text{cans} = 180 m^2 \div 35 m^2$
$= 5.14$ cans
Buy 6 cans

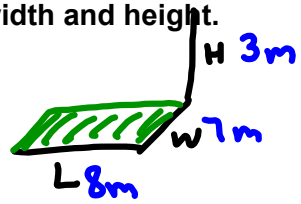
Mental Math

1) 24 x 25 2) 9.5 x 0.1 3) 5 x 13.6 x 20

Warm Up Grade 8

Whenever 3 dimensions are given, they are in the order: length, width and height.

Assessment Review



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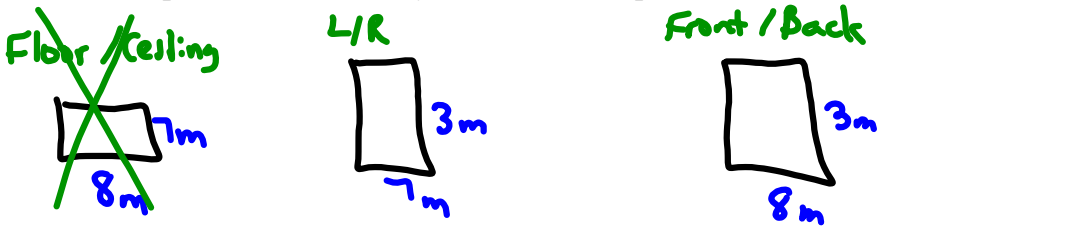
a) How much paint should she buy if she needs to put 2 coats on the walls?



$A_{\square} = 3m \times 7m$

$= 21m^2$

$\times 2$ L/R

$42m^2$

$A_{\square} = 8m \times 3m$

$= 24m^2$

$\times 2$ Front/Back

$48m^2$

Total SA of wall $= 42m^2 + 48m^2$

$= 90m^2$

$\times 2$ coats of Paint

$180m^2$ of paint is needed

$\#cans = 180m^2 \div 35m^2$

$= 5.1$ cans

Buy 6 cans

like ÷ by 10, $\frac{1}{10}$

Mental Math

1) 24 x 25

half double

12 x 50

= 600

2) 9.5 x 0.1

95 x 1

95

9.5 x 0.1

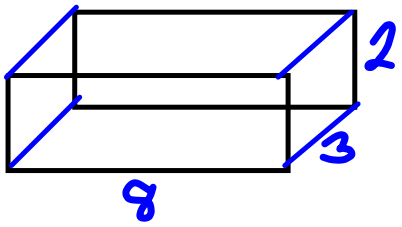
0.95

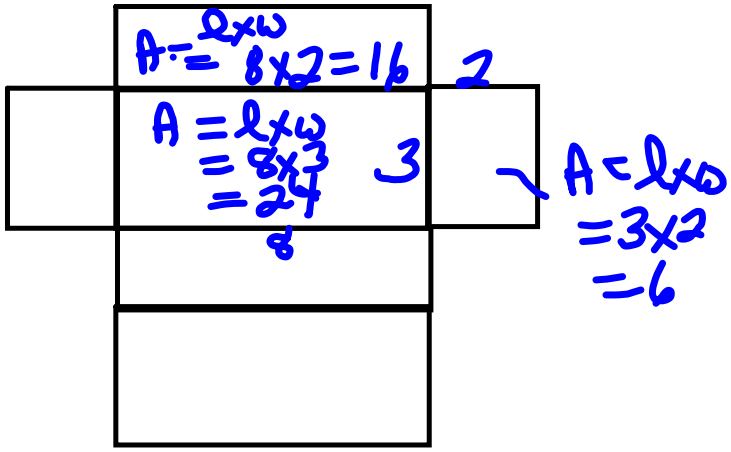
3) 5 x 13.6 x 20

100 x 13.6

1360

5.





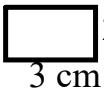
top/bottom

$A = l \times w$

$= 8 \text{ cm} \times 3 \text{ cm}$

$= 24 \text{ cm}^2$

side/side

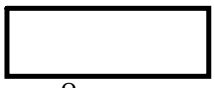


$A = l \times w$

$= 2 \text{ cm} \times 3 \text{ cm}$

$= 6 \text{ cm}^2$

front/back



$A = l \times w$

$= 2 \text{ cm} \times 8 \text{ cm}$

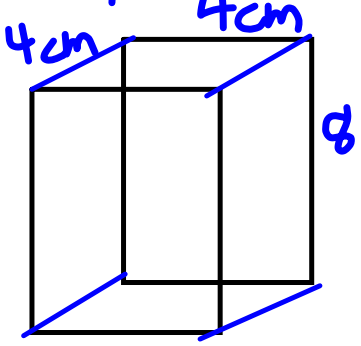
$= 166 \text{ cm}^2$

$SA = 2 \times 16 + 2 \times 24 + 2 \times 6$

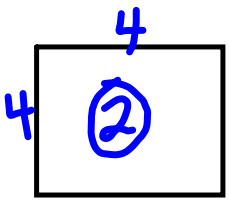
$= 32 + 48 + 12$

$= 92 \text{ cm}^2$

a)

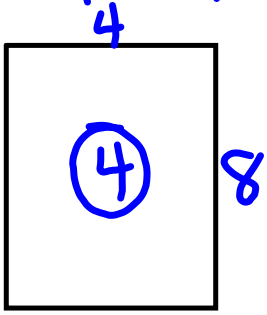


Top and Botton



$A = l \times w$
$= 4 \times 4$
$= 16 cm^2$

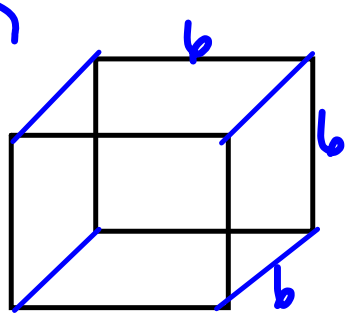
Front, Back, Sides



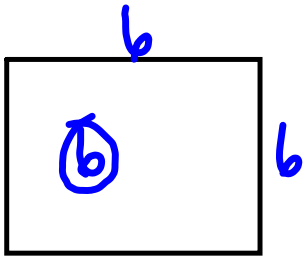
$A = l \times w$
$= 8 \times 4$
$= 32 cm^2$

$SA = 2 \times 16 + 4 \times 32$
$= 32 + 128$
$= 160 cm^2$

b)



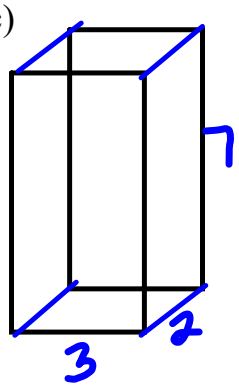
Cube - All faces the same

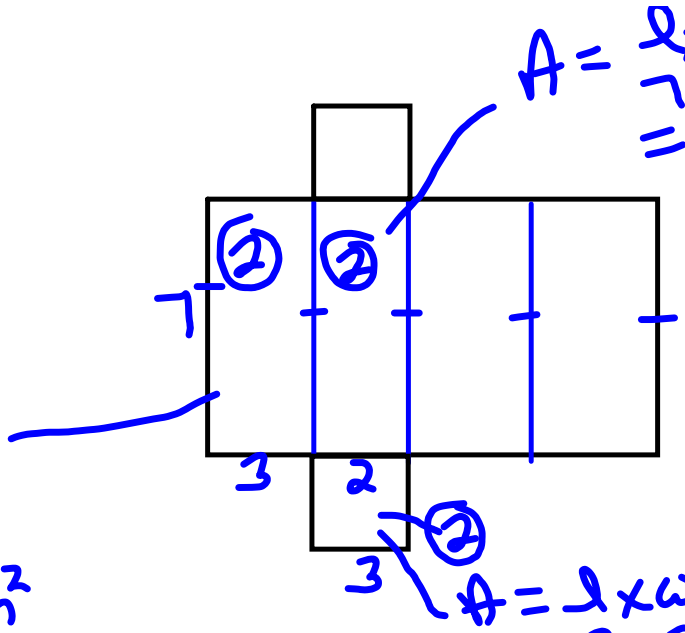


$A = l \times w$
$= 6 \times 6$
$= 36 cm^2$

$SA = 6 \times 36$
$= 216 cm^2$

6c)





$A = l \times w$
$= 7 \times 3$
$= 21 cm^2$

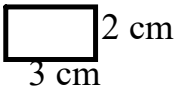
$A = l \times w$
$= 7 \times 2$
$= 14 cm^2$

$A = l \times w$
3×2
$= 6 cm^2$

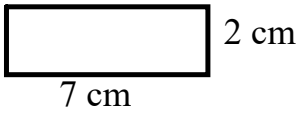
$SA = 2 \times 21 + 2 \times 14 + 2 \times 6$
$= 42 + 28 + 12$
$= 82 cm^2$

top/bottom

side/side



front/back



A = l x w
= 7 cm x 3 cm
= 21 cm^2

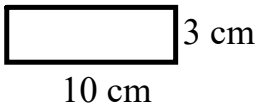
A = l x w
= 2 cm x 3 cm
= 6 cm^2

A = l x w
= 2 cm x 7 cm
= 14 cm^2

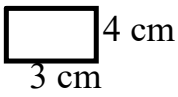
Total SA = 2 (Top) + 2 (Side) + 2 (Front)
= 2 (21 cm^2) + 2 (6 cm^2) + 2 (14 cm^2)
= 42 cm^2 + 12 cm^2 + 28 cm^2
= 82 cm^2

7a)

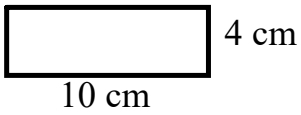
top/bottom



side/side



front/back



A = l x w
= 10 cm x 3 cm
= 30 m^2

A = l x w
= 4 cm x 3 cm
= 12 m^2

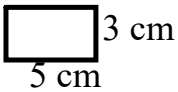
A = l x w
= 10 cm x 4 cm
= 40 m^2

Total SA = 2 (Top) + 2 (Side) + 2 (Front)
= 2 (30 m^2) + 2 (12 m^2) + 2 (40 m^2)
= 60 m^2 + 24 m^2 + 80 m^2
= 164 m^2

7b)

top/bottom

side/side



front/back

A = l x w
= 8 cm x 3 cm
= 24 cm^2

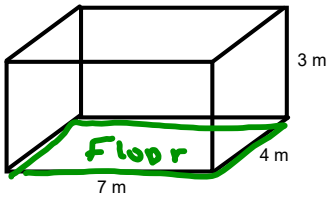
A = l x w
= 5 cm x 3 cm
= 15 cm^2

A = l x w
= 5 cm x 8 cm
= 40 cm^2

Total SA = 2 (Top) + 2 (Side) + 2 (Front)
= 2 (24 cm^2) + 2 (15 cm^2) + 2 (40 cm^2)
= 48 cm^2 + 30 cm^2 + 80 cm^2
= 158 cm^2

Whenever 3 dimensions are given, they are in the order: length, width and height.

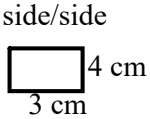
9)



The walls are being painted.

b) Assume you don't include ceiling and floor

side/side



front/back

$A = l \times w$
$= 4 \text{ cm} \times 3 \text{ cm}$
$= 12 \text{ m}^2$

$A = l \times w$
$= 7 \text{ cm} \times 3 \text{ cm}$
$= 21 \text{ m}^2$

Total SA Walls = 2 (Side) + 2 (Front)
$= 2 (12 \text{ m}^2) + 2 (21 \text{ m}^2)$
$= 24 \text{ m}^2 + 42 \text{ m}^2$
$= 66 \text{ m}^2$

Need 2 coats so need to cover twice the area $= 2 \times 66 \text{ m}^2$
$= 132 \text{ m}^2$

1 can covers 40 m^2

$132 / 40 = 3.3$ cans

Need to buy 4 cans

10) All 6 sides of a cube have equal area so

a) Area of one face of a cube = $54 \text{ cm}^2 / 6$
$= 9 \text{ cm}^2$

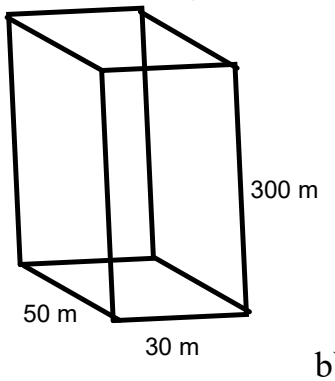
b) Area of square = 9 cm^2

side = $\sqrt{9}$

side = 3 cm

Whenever 3 dimensions are given, they are in the order: length, width and height.

11)



b) Assume you don't include ceiling and floor

side/side

$A = l \times w$

$= 30 \text{ cm} \times 300 \text{ cm}$

$= 9000 \text{ m}^2$

front/back

$A = l \times w$

$= 300 \text{ cm} \times 50\text{cm}$

$= 15000 \text{ m}^2$

Total SA Walls = 2 (Side) + 2 (Front)

$= 2 (9000 \text{ m}^2) + 2 (15000 \text{ m}^2)$

$= 18000 \text{ m}^2 + 30000 \text{ m}^2$

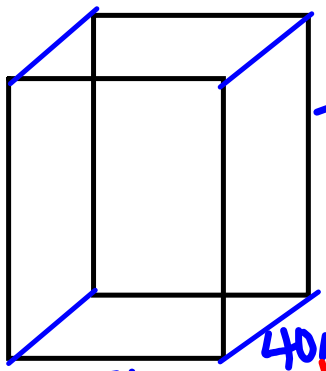
$= 48\,000 \text{ m}^2$

Only 1/4 are windows

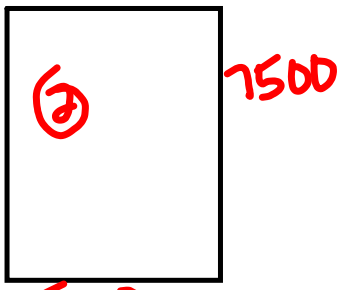
$$\frac{48\,000 \text{ m}^2}{4} = 12\,000 \text{ m}^2$$

12)

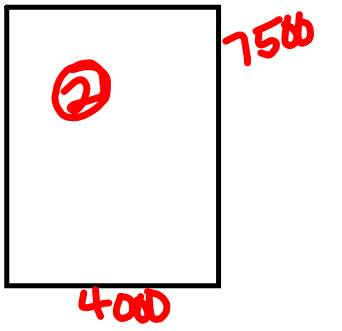
12.



Find area of 4 walls.



$A = l \times w$
$= 7500 \times 5000$
$= 375\,000\,000\ cm^2$



$A = l \times w$
$= 7500 \times 4000$
$= 300\,000\,000\ cm^2$

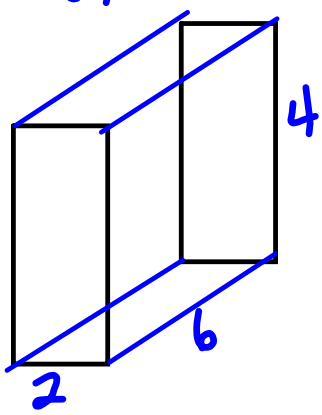
Total Area $= 2 \times 375\,000\,000 + 2 \times 300\,000\,000$
$= 750\,000\,000 + 600\,000\,000$
$= 1\,350\,000\,000\ cm^2$

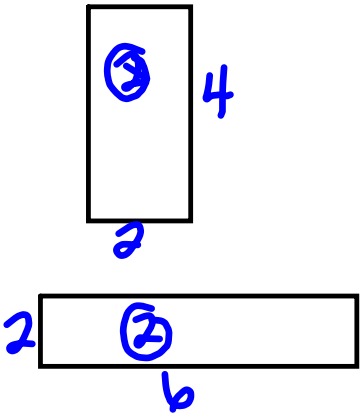
1 Euro per month for every $50\ cm^2$

$$\frac{1\,350\,000\,000}{50}$$

27 000 000 Euros per month for advertising

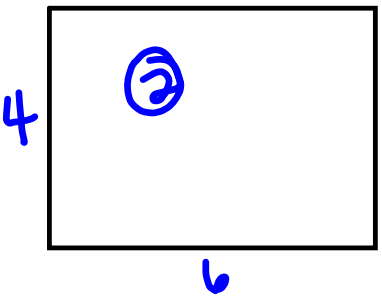
13 a)





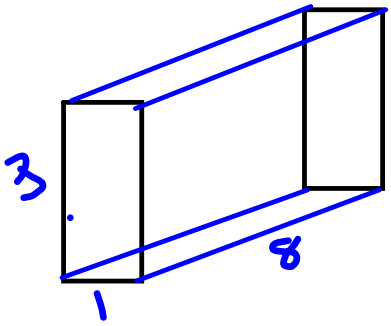
$A = l \times w$
$= 4 \times 2$
$= 8\ cm^2$

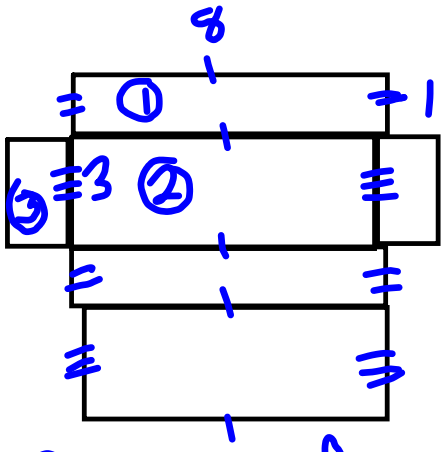
$A = l \times w$
$= 6 \times 2$
$= 12\ cm^2$



$A = l \times w$
$= 6 \times 4$
$= 24\ cm^2$

$SA = 2 \times 8 + 2 \times 12 + 2 \times 24$
$= 16 + 24 + 48$
$= 88\ cm^2$





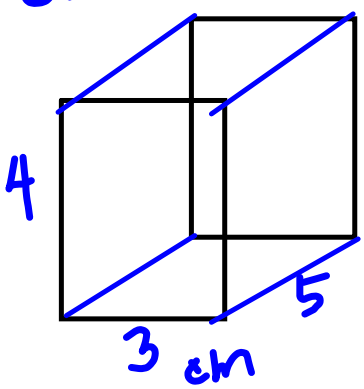
$A_① = l \times w$
$= 8 \times 1$
$= 8\ cm^2$

$A_② = l \times w$
$= 8 \times 3$
$= 24\ cm^2$

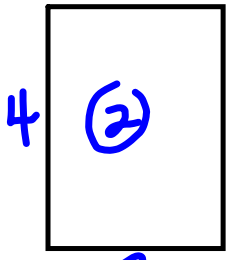
$A_③ = l \times w$
$= 3 \times 1$
$= 3\ cm^2$

$SA = 2 \times 8 + 2 \times 24 + 2 \times 3$
$= 16 + 48 + 6$
$= 70\ cm^2$

c)

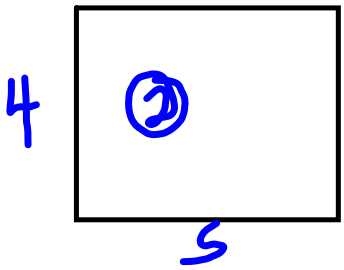


Front & Back



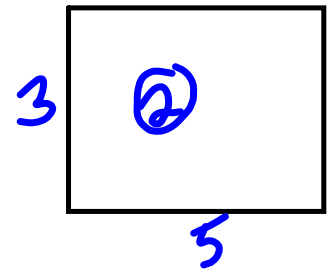
$A = l \times w$
$= 4 \times 3$
$= 12 cm^2$

Sides



$A = l \times w$
$= 4 \times 5$
$= 20 cm^2$

Top and Bottom



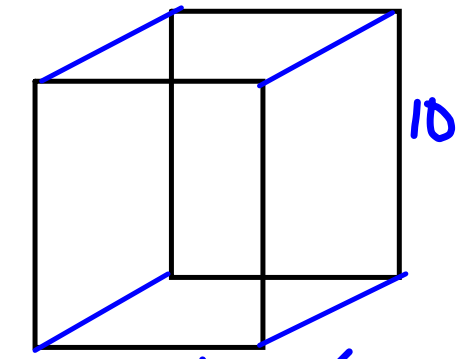
$A = l \times w$
$= 5 \times 3$
$= 15 cm^2$

$SA = 2 \times 12 + 2 \times 20 + 2 \times 15$
$= 24 + 40 + 30$
$= 94 cm^2$

Greatest SA $3 \times 4 \times 5$ Prism R

Least SA $1 \times 3 \times 8$ Prism Q

14.



A - Top & Bottom
$= 2 \times 5 = 10$
A - Sides
$10 \times 5 = 50$
A Front & Back
$10 \times 2 = 20$

$SA = 2 \times 10 + 2 \times 50 + 2 \times 20$
$= 20 + 100 + 40$
$= 160 cm^2$

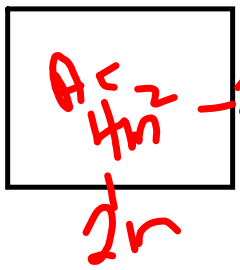
a) Double the length → 4cm
Area of sides stayed the same → 50cm²
Top & Bottom → $4 \times 5 = 20 cm^2$
Front & Back → $4 \times 10 = 40 cm^2$
$SA = 2 \times 50 + 2 \times 20 + 2 \times 40$
$= 100 + 40 + 80 = 220 cm^2$

b) Half the length
Area of Sides → same $50 cm^2$
T & B → $1 \times 5 = 5 cm^2$
F & B → $1 \times 10 = 10 cm^2$

$SA = 2 \times 50 + 2 \times 5 + 2 \times 10$
$= 100 + 10 + 20$
$= 130 cm^2$

16. Square Base $4m^2$

Surface Area $48m^2$



Both bases → $8m^2$

4 sides → have an area $40m^2$ $(48-8)$

One of lengths 2cm

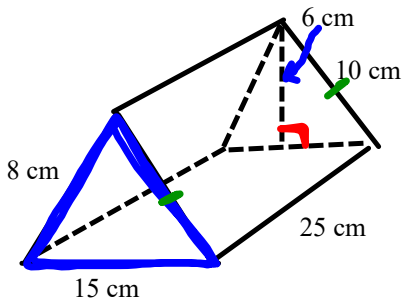
Each of rectangles is the same,

so area of each rectangle $\frac{40}{4} = 10cm^2$

$2 \times 5 = 10$

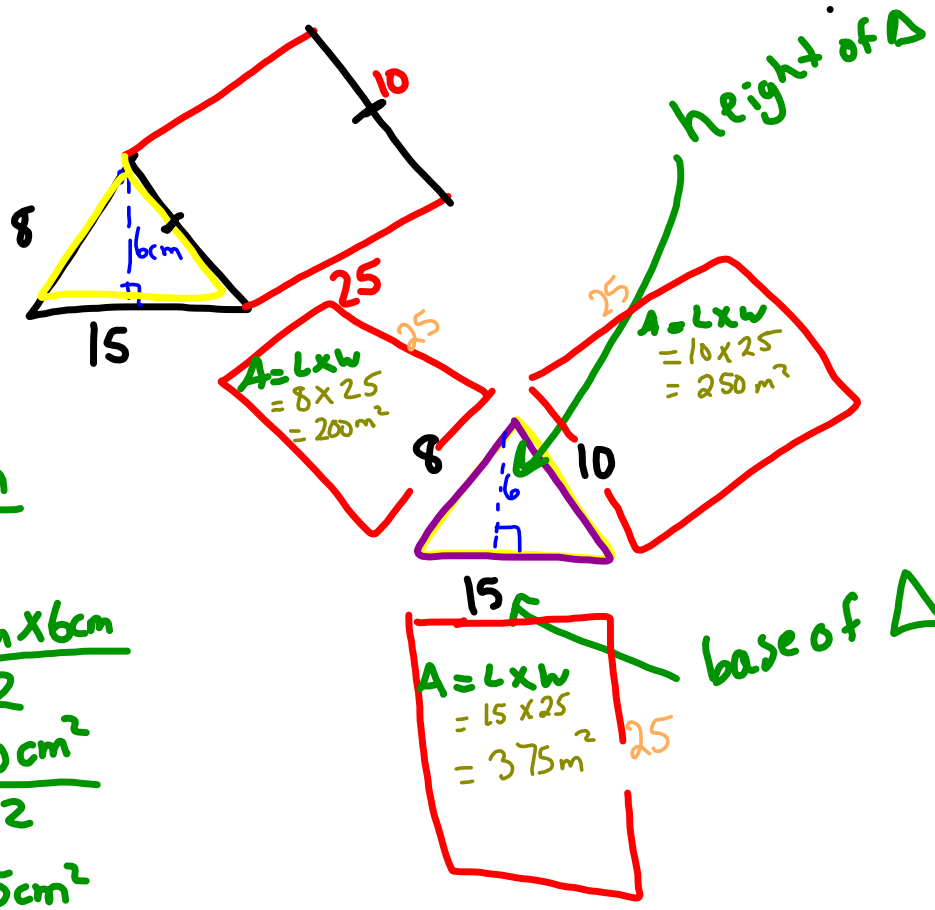
Dimensions $2 \times 2 \times 5$

Surface Area of Triangular Prism



The Surface Area of a Triangular Prism =
areas of the 3 rectangular faces + 2 (the area of the triangular bases)

Sketch the faces (HINT start with the Triangle)



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

$= \frac{15cm \times 6cm}{2}$

$= \frac{90cm^2}{2}$

$A_\Delta = 45cm^2$

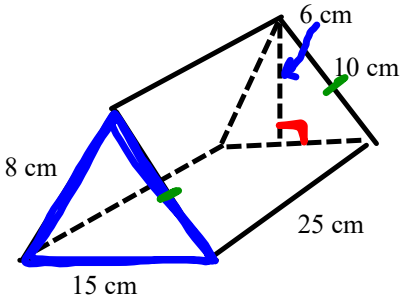
Total $SA_{\Delta pr}$ = 2Δ + □ + □ + □

= 2(45) + ___ + ___ + ___

= 90m² 375m² + 200m² + 250m²

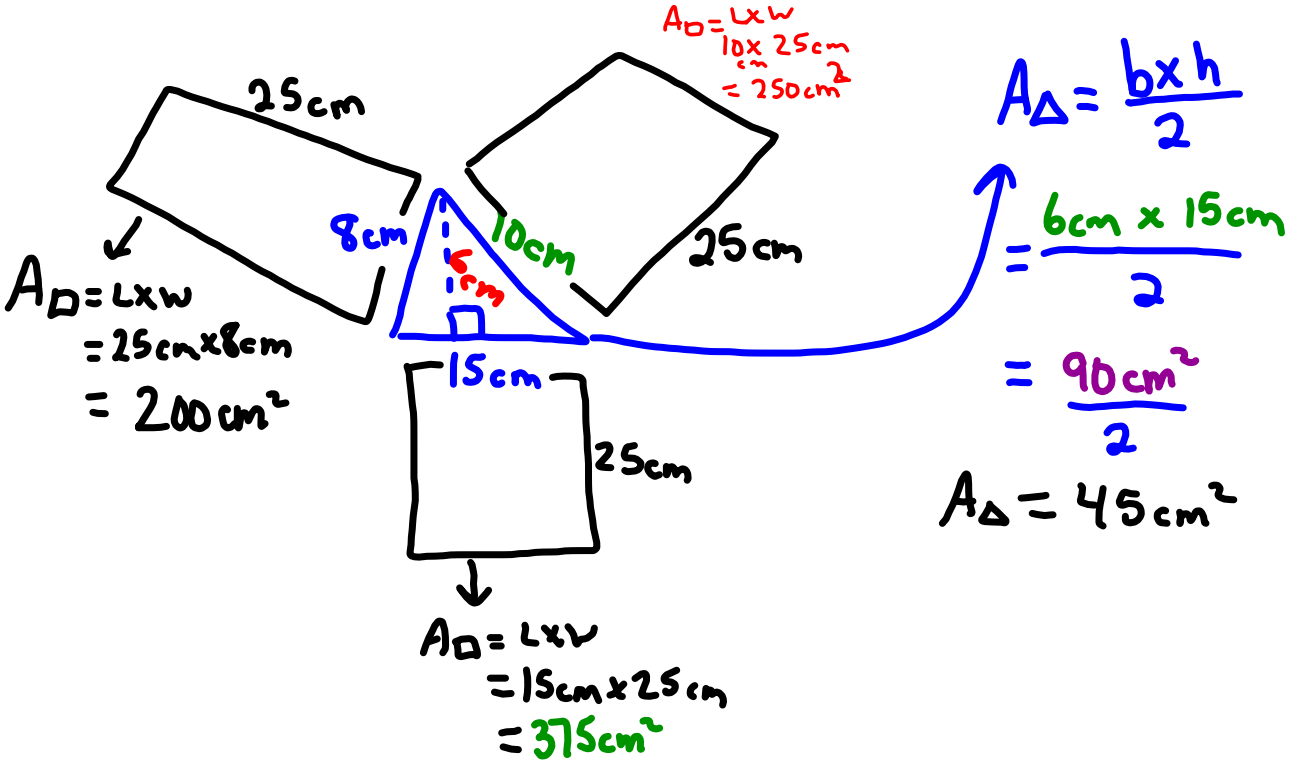
= 915m²

Surface Area of Triangular Prism



The Surface Area of a Triangular Prism =
areas of the 3 rectangular faces + 2 (the area of the triangular bases)

Sketch the faces (HINT start with the Triangle)



Total SA = 2△ + □ + □ + □

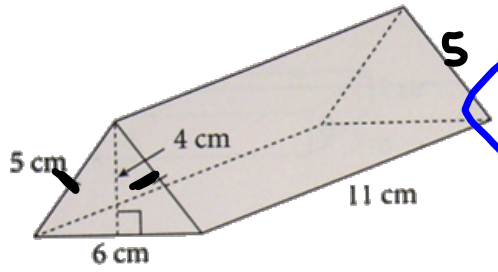
$= 2(45cm^2) + 200cm^2 + 375cm^2 + 250cm^2$

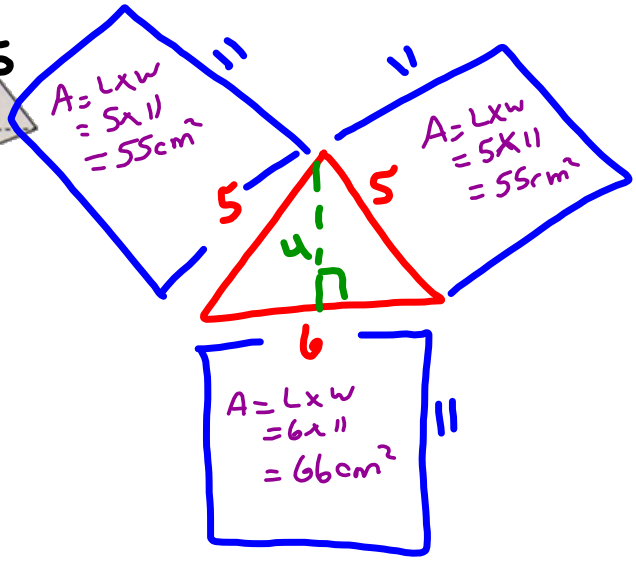
$= 90cm^2 + 200cm^2 + 375cm^2 + 250cm^2$

$= 915cm^2$

Sketch a net of this right triangular prism.
What is its surface area?

Answer = 200cm²





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

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

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

$= 12cm^2$

Total SA = 2△ + □ + □ + □

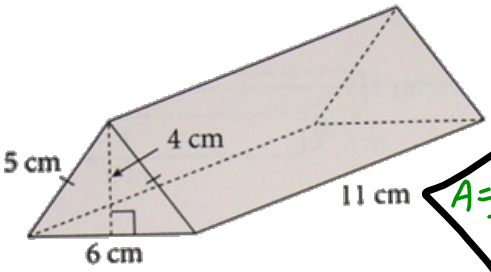
$= 2(12cm^2) + 66cm^2 + 55cm^2 + 55cm^2$

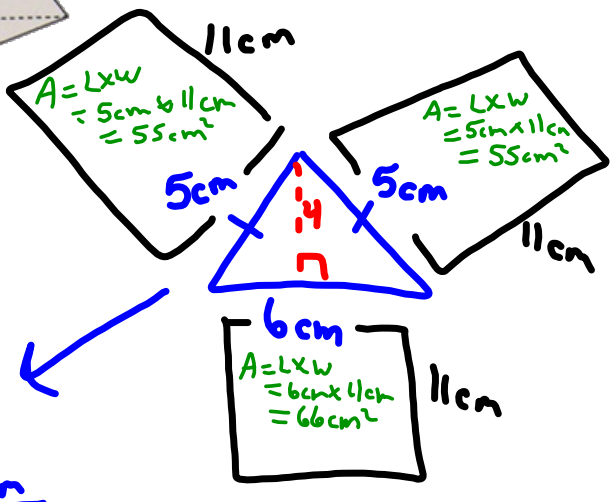
$= 24cm^2 + 66cm^2 + 55cm^2 + 55cm^2$

$= 200cm^2$

Sketch a net of this right triangular prism.
What is its surface area?

Answer = 200cm²





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

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

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

$= 12cm^2$

Total SA = 2Δ + □ + □ + □

$2(12cm^2) + 55cm^2 + 55cm^2 + 66cm^2$

$24cm^2 + 55cm^2 + 55cm^2 + 66cm^2$

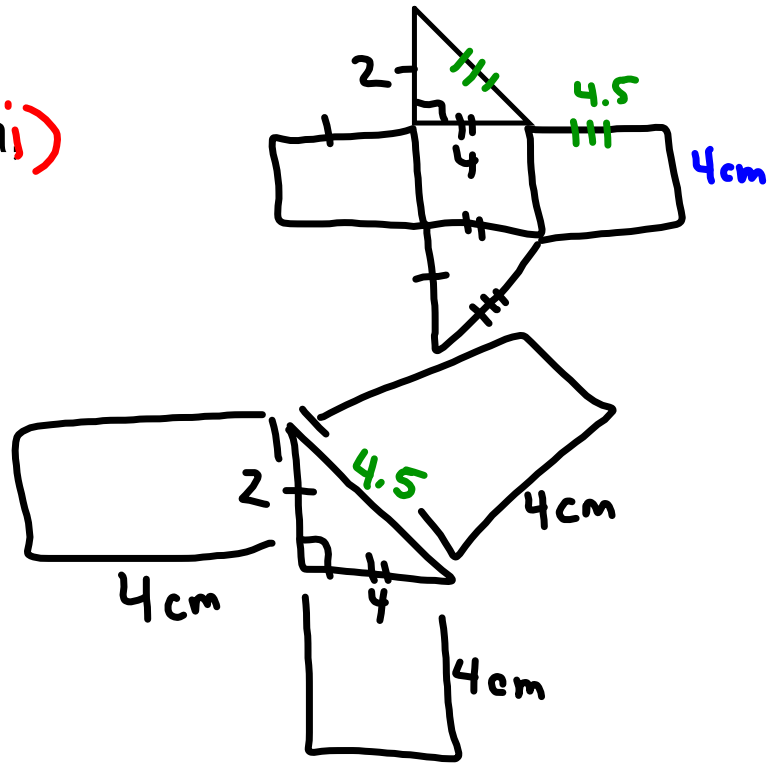
$= 200cm^2$

Class/Homework

Page 191

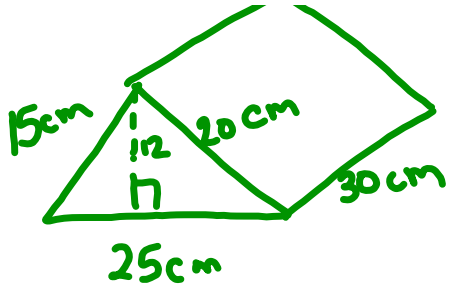
~~#4~~, ~~#5~~, #6 #7a) i)

add up all numbers

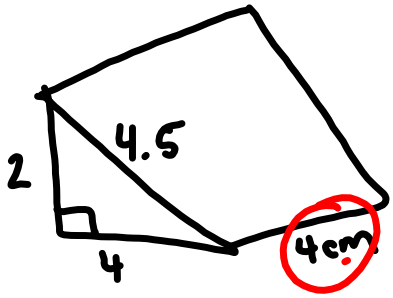


2D + D + D + D

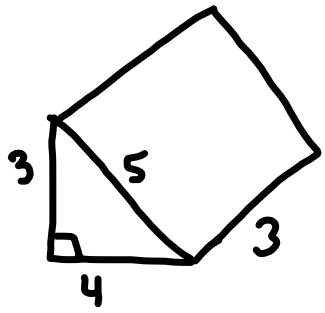
9)

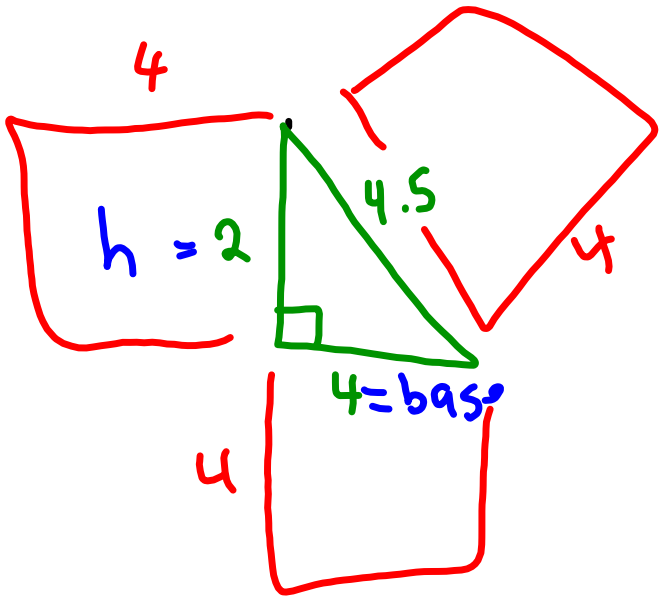


7b)



b)





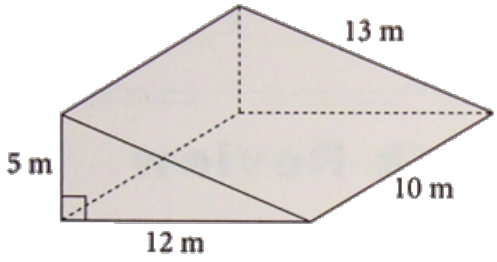
$A_\Delta = \frac{b \times h}{2}$

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

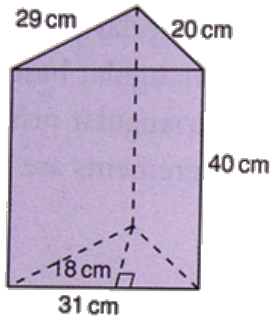
$= \frac{8}{2}$

$= 4 cm^2$

Sketch a net of this right triangular prism.
What is its surface area?



Sketch a net of this right triangular prism.
What is its surface area?



Attachments

Review of Surface area of 2D Shape Grade 8 Unit 4 PDF.pdf