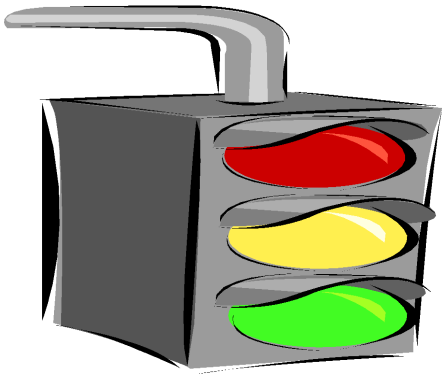


page 30 & 31

questions

10

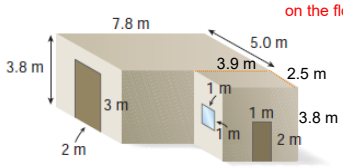
Extra Practice 3 Worksheet

questions

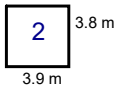
All Questions

10) A garage has the dimension shown. The attached shed has the same height as the garage, but is one-half as long and one-half a width

Remember you do not have to put anything on the floor



Overlap



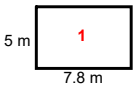
A = l x w
= 3.9 m x 3.8 m
= 14.82 m^2

BUT 2 faces involved for each overlap
THUS must multiply by 2 to get total overlapped area

2A = 29.64 m^2

Step 1) Calculate the sides of all of the larger prism, (7.8, 5, 3.8)

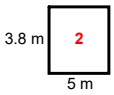
roof:



A_1 = l x w
= 5 m x 7.8 m
= 39 m^2

A_1 = 39 m^2

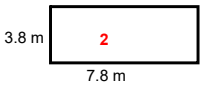
left & right sides:



A_2 = l x w
= 5 m x 3.8 m
= 19 m^2

$2A_2$ = 38 m^2

front & back side:



A_3 = l x w
= 3.8 m x 7.8 m
= 29.64 m^2

$2A_3$ = 59.28 m^2

Total SA of BIG = $A_1 + 2A_2 + 2A_3$
= 39 m^2 + 38 m^2 + 59.28 m^2
= 136.28 m^2

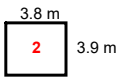
Step 2) Front building : dimensions 3.8 m x 2.5 m x 3.9 m

roof:

A_1 = l x w
= 3.9 m x 2.5 m
= 9.75 m^2

A_1 = 9.75 m^2

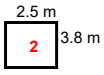
front/back:



A_2 = l x w
= 3.8 m x 3.9 m
= 14.82 m^2

$2A_2$ = 29.64 m^2

left side and right side:



A_3 = l x w
= 2.5 m x 3.8 m
= 9.5 m^2

$2A_3$ = 19 m^2

Total SA of BIG = $A_1 + 2A_2 + 2A_3$
= 9.75 m^2 + 29.64 m^2 + 19 m^2
= 58.39 m^2

Door 1

A_1 = l x w
= 2 m x 3 m
= 6 m^2

Door 2

A_2 = l x w
= 2 m x 1 m
= 2 m^2

Window

A_3 = l x w
= 1 m x 1 m
= 1 m^2

So surface area of the storage space without windows and doors:

SA = Big area + Small area - overlap area -door -window -window
= 136.28 m^2 + 58.39 m^2 - 29.64 m^2 - 6m^2 - 2m^2 - 1m^2
= 156.03 m^2

b) Vinyl siding costs \$15/m^2. The doors, windows, and roof will not be covered with siding. How much will it cost to cover this building with siding?

Total area the Roofs = Big Roof Area + Small Roof Area

= 39 m^2 + 9.75 m^2

= 48.75 m^2

area of building - area of roofs

= 156.03 m^2 - 48.75 m^2

= 107.28 m^2

Total Price = 107.28 m^2 x 15/m^2

= \$1609.20

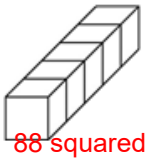
=

Class/ Homework

Lesson 1.3: Surface Areas of Objects Made from Right Rectangular Prisms

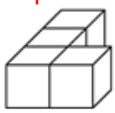
1. Each cube has edge length 2 unit.
Determine the surface area of each object.

a)

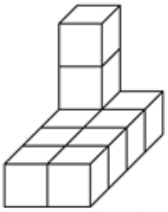


88 squared units

b) 72 squared units

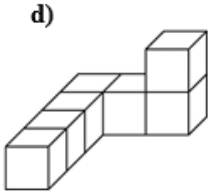


c)

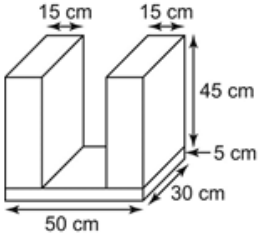


144 squared units

d) 120 squared units



2. Determine the surface area of this composite object.

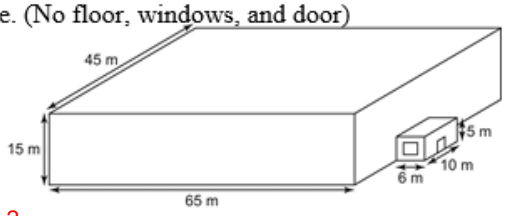


11 900 squared units

3. The local curling rink is shown in the diagram at the right.

a) Determine the surface area of the warehouse. (No floor, windows, and door)

6345 m^2



b) The door is 1 m by 2 m
and the window is 4 m by 2 m. Determine
the surface area to be painted. 6335 m^2

c) A can of paint covers 300 m^2 and
costs \$45. Determine the cost of the paint needed. \$990

1a) 

$A = b^2$
$A = 2^2$
$A = 4\ cm^2$

5 cubes x 6 = 30 faces
− 8 overlap faces
22 visible faces
x 4 cm^2
88 cm^2

b) 

$A = b^2$
$A = 2^2$
$A = 4\ cm^2$

4 cubes x 6 = 24 faces
− 6 overlap faces
18 visible faces
x 4 cm^2
72 cm^2

c) 

$A = b^2$
$A = 2^2$
$A = 4\ cm^2$

10 cubes x 6 = 60 faces
−24 overlap faces
36 visible faces
x 4 cm^2
144 cm^2

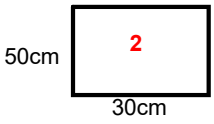
d) 

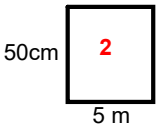
$A = b^2$
$A = 2^2$
$A = 4\ cm^2$

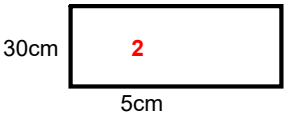
7 cubes x 6 = 42 faces
− 12 overlap faces
30 visible faces
x 4 cm^2
120 cm^2

2)

Step 1) Calculate the sides of all of the bottom prism, 50, 30, 5







$A_1 = l \times w$
$= 50cm \times 30cm$
$= 1500cm^2$

$2A_1 = 3000cm^2$

$A_2 = l \times w$
$= 50cm \times 5cm$
$= 250cm^2$

$2A_2 = 500cm^2$

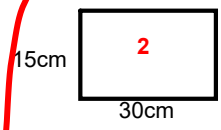
$A_3 = l \times w$
$= 30cm \times 5cm$
$= 150cm^2$

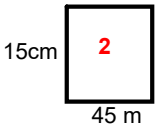
$2A_3 = 300cm^2$

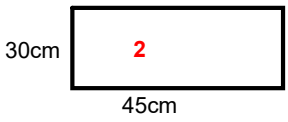
Total SA of Bottom $= 2A_1 + 2A_2 + 2A_3$
$= 3000cm^2 + 500cm^2 + 300cm^2$
$= 3800cm^2$

Step 1) Calculate the sides of all of the top prism, 15, 30, 45

x2







$A_1 = l \times w$
$= 15cm \times 30cm$
$= 450cm^2$

$2A_1 = 900cm^2$

$A_2 = l \times w$
$= 15cm \times 45cm$
$= 675cm^2$

$2A_2 = 1350cm^2$

$A_3 = l \times w$
$= 30cm \times 45cm$
$= 1350cm^2$

$2A_3 = 2700cm^2$

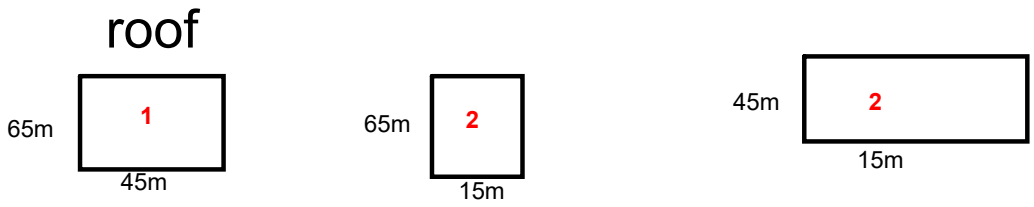
Total SA of top1 $= 2A_1 + 2A_2 + 2A_3$
$= 900cm^2 + 1350cm^2 + 2700cm^2$
$= 4950cm^2$

Total SA of top2 =
$= 4950cm^2$

SA = Bottom + Top + Top - overlap area - over lap
$= 3800cm^2 + 4950cm^2 + 4950cm^2 - 900cm^2 - 900cm^2$
$= 11\ 900\ cm^2$

2)

Step 1) Calculate the sides of all of the big prism, 65, 45, 15



$A_1 = l \times w$
$= 65m \times 45m$
$= 2925m^2$

$A_1 = 2925m^2$

$A_2 = l \times w$
$= 65m \times 15m$
$= 975m^2$

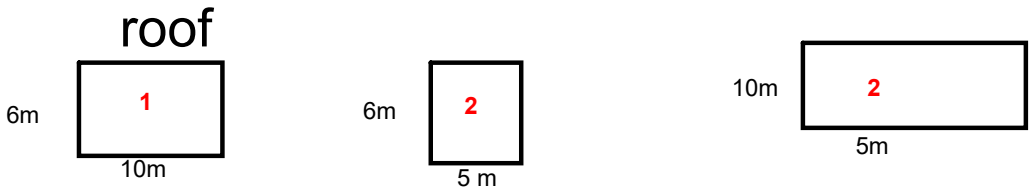
$2A_2 = 1950m^2$

$A_3 = l \times w$
$= 45m \times 15m$
$= 675m^2$

$2A_3 = 1350m^2$

Total SA of Bottom $= A_1 + 2A_2 + 2A_3$
$= 2925m^2 + 1950m^2 + 1350m^2$
$= 6225m^2$

Step 1) Calculate the sides of all of the small prism, 6, 10, 5



$A_1 = l \times w$
$= 6m \times 10m$
$= 60m^2$

$A_1 = 60m^2$

$A_2 = l \times w$
$= 6m \times 5m$
$= 30m^2$

$2A_2 = 60m^2$

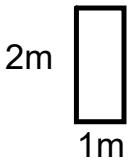
$A_3 = l \times w$
$= 10cm \times 5cm$
$= 50m^2$

$2A_3 = 100cm^2$

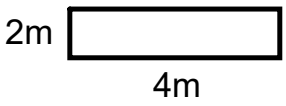
Total SA of top1 $= A_1 + 2A_2 + 2A_3$
$= 60m^2 + 60m^2 + 100m^2$
$= 220m^2$

SA = Bid + small - overlap area
$= 6225m^2 + 220cm^2 - 100m^2$
$= 6345cm^2$

b)



$A_1 = l \times w$
$= 2m \times 1m$
$= 2m^2$



$A_1 = l \times w$
$= 2m \times 4m$
$= 8m^2$

SA = Bid + small - overlap area - door -window
$= 6225m^2 + 220cm^2 - 100m^2 - 2m^2 - 8cm^2$
$= 6335cm^2$

c)

SA = $6335cm^2$

$6335m^2 \div 300m^2$

= 21.12 cans

= 22 cans

x $45

$990