Warm Up

1. Determine the value of $\sqrt{0.09}$. (Without a calculator)

$$\sqrt{\frac{9}{100}} \times 100 = \frac{\sqrt{9}}{\sqrt{100}} = \frac{3}{10} = 6.3$$

$\times 100$

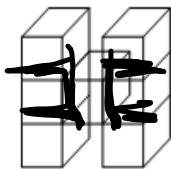2. Which fraction is a perfect square? (WITHOUT A CALCULATOR)

a) $\frac{49}{60}$ b) $\frac{49}{225}$ c) $\frac{28}{225}$ d) $\frac{7}{15}$

3. This object is made from 7 cubes with dimensions of 1 x 1 x 1. Determine its surface area.

1 face   1 unit^2

$$7 \times 6 = 42 \text{ faces}$$

$$6 \text{ overlap} \times 2 = 12 \text{ faces}$$

$$\overline{}$$

$$30 \text{ faces}$$

$$30 \text{ units}^2$$

Class/ Homework

You seen how I showed all my work with last nights homework, you must do the same for this worksheet. (No shortcuts)
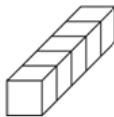
Name _____ Date _____

(Master 1.18) **Extra Practice 3**

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.
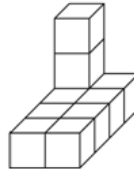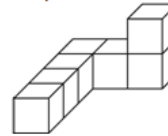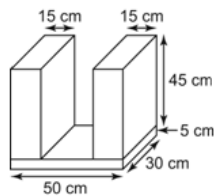
   a)   b)   c)   d)

2. Each edge of a linking cube is 1 unit long. Build a composite object with 7 linking cubes. Exchange objects with a classmate. Determine the surface area of your classmate's object. Check each other's work.

3. Determine the surface area of this composite object.

   15 cm   15 cm
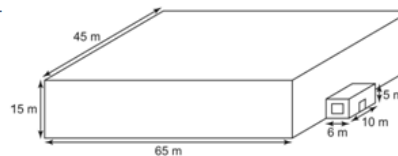   45 cm
   5 cm
   30 cm
   50 cm

4. The local curling rink is shown in the diagram at the right. It is to be painted.

   a) Determine the surface area of the structure.

   b) The roof, windows, and door are not to be painted. The door is 1 m by 2 m and the window is 4 m by 2 m. Determine the surface area to be painted.
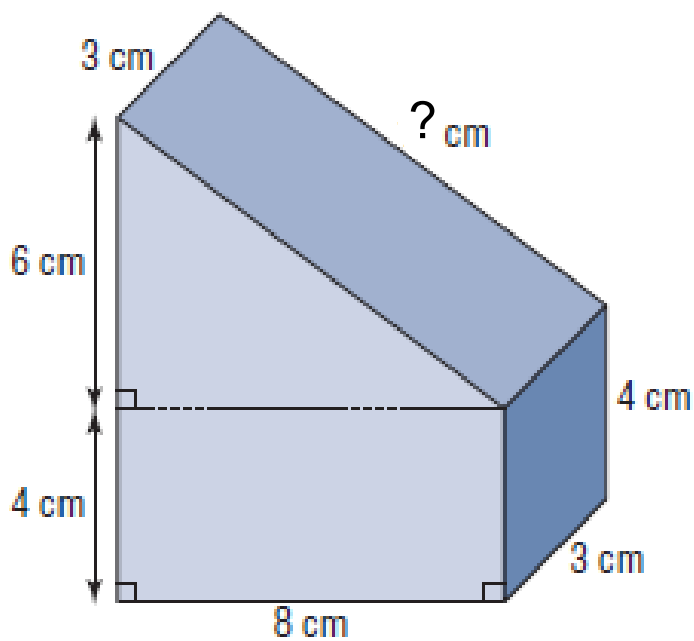
   c) A can of paint covers 300 m^2 and costs $45. Determine the cost of the paint needed.
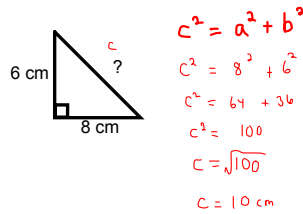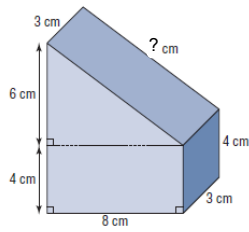
   45 m
   15 m
   5 m
   10 m
   6 m
   65 m

Find the Surface Area (Show all work)

3 cm
? cm
6 cm
4 cm
4 cm
3 cm
8 cm

6 cm
c
?
8 cm

$c^2 = a^2 + b^2$
$c^2 = 8^2 + 6^2$
$c^2 = 64 + 36$
$c^2 = 100$
$c = \sqrt{100}$
$c = 10\ cm$

Triangle Prism

Front/Back

6 cm
2
8 cm

$A_1 = \dfrac{b \times h}{2}$
$= \dfrac{6 \times 8}{2}$
$= \dfrac{48}{2}$
$= 24\ cm^2$
$2A_1 = 48\ cm^2$

Left Side

1   3 cm
6 cm

$A_2 = b \times h$
$= 6 \times 3$
$A_2 = 18\ cm^2$

Bottom

1   3 cm
8 cm

$A_3 = b \times h$
$= 8 \times 3$
$A_3 = 24\ cm^2$

Top

1   ? cm
10
3 cm

$A_4 = b \times h$
$A = 3 \times 10$
$A_4 = 30\ cm^2$
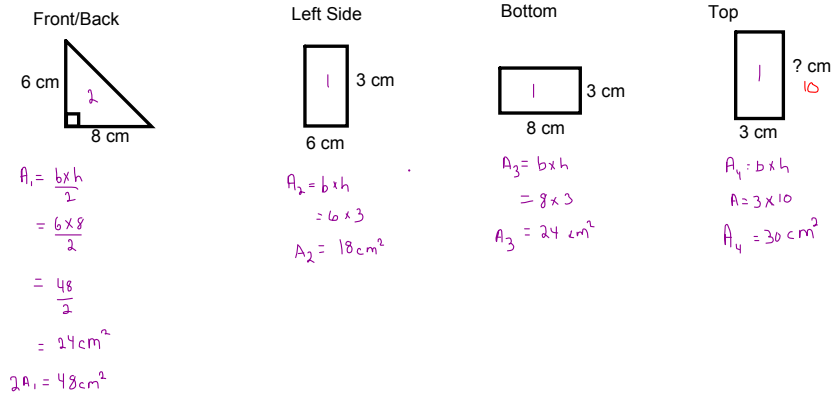
$SA_1 = 2A_1 + A_2 + A_3 + A_4$
$= 48 + 18 + 24 + 30$
$SA_1 = 120\ cm^2$

Rectangle Prism

Front/Back

2   4 cm
8 cm

$A_1 = b \times h$
$= 8 \times 4$
$A_1 = 32\ cm^2$
$2A_1 = 64\ cm^2$

Left/Right

2   4 cm
3 cm

$A_2 = b \times h$
$= 3 \times 4$
$A_2 = 12\ cm^2$
$2A_2 = 24\ cm^2$

Top/Bottom

2   3 cm
8 cm

$A_3 = b \times h$
$= 8 \times 3$
$A_3 = 24\ cm^2$
$2A_3 = 48\ cm^2$
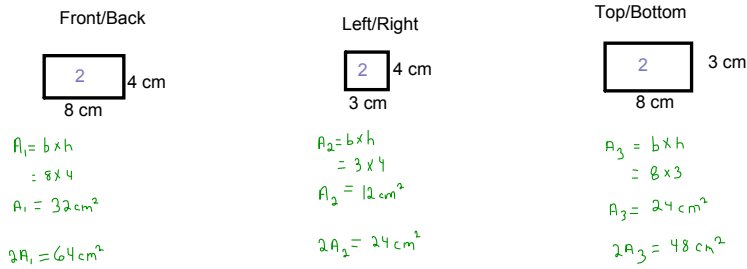
$SA_2 = 2A_1 + 2A_2 + 2A_3$
$= 64 + 24 + 48$
$SA_2 = 136\ cm^2$

Overlap

2   3 cm
8 cm

$A = b \times h$
$= 8 \times 3$
$A = 24\ cm^2$
$2A = 48\ cm^2$
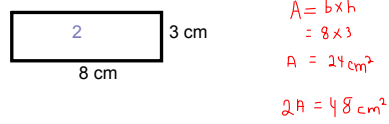
Total Surface Area

$T_{SA} = SA_1 + SA_2 - overlap$
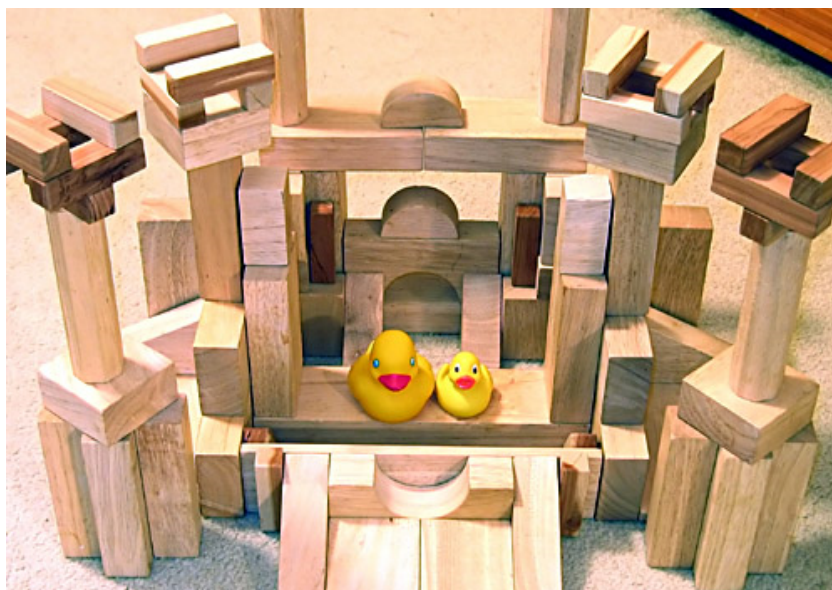$= 120 + 136 - 48$
$= 208\ cm^2$

4

Section 1.4

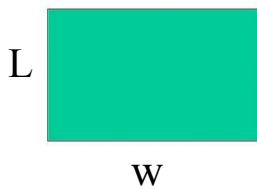# Surface Area Of Other Composite Objects

Surface area????

Other Composite Shapes

3-D shapes sitting on other 3-D shapes (This will cause an overlap meaning that the entire two or more shapes are not exposed to the surface
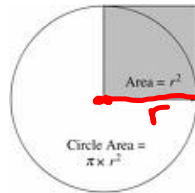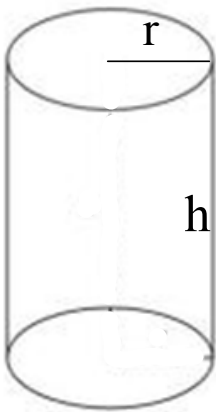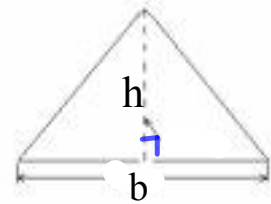
Area of Shapes

Area of a Circle

Area of a Rectangle

A = length x width

L

w

$$A = \pi r^2$$

$$= (3.14)(r)^2$$

Area = r^2

Circle Area =
$\pi \times r^2$

Area of Triangle

A =   (base x height)
         2

h

b

r

h

2 circles + rectangle

Area of Cylinder = $2\pi r^2 + 2\pi rh$

$$= 2(3.14)(\underline{\quad})^2 + 2(3.14)(\underline{\quad})(\underline{\quad})$$

How much paint is needed to cover the following shape?

You try!!!

8 cm

15 cm

Overlap

20 cm

10 cm

30 cm
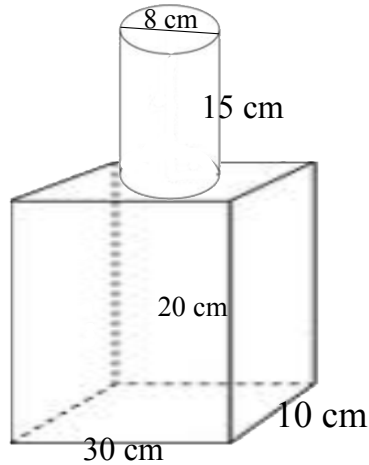
Cylinder

Area of Cylinder = $2\pi r^2 + 2\pi rh$

$= 2(3.14)(\underline{4})^2 + 2(3.14)(\underline{4})(\underline{15})$

$= 2(3.14)(\underline{16}) + 2(3.14)(\underline{4})(15)$

$= \quad 100.48 \; + 376.8$

$= \qquad 477.28$

Rectangular Prism

Top		
A = 30 cm x 10 cm	A = 20 cm x 30 cm	A = 10 cm x 20 cm
= 300 cm^2	= 600 cm^2	= 200 cm^2
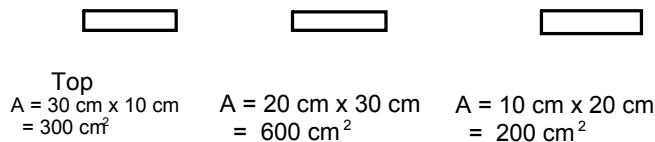
Total SA small = 2Top +2Side +2Front
$= 2(300cm^2) + 2(600cm^2) + 2(200cm^2)$
$= 600 \; cm^2 \quad + 1200cm^2 \quad + 400cm^2$
$= 2200cm^2$

Overlap Area = πr^2
$= 3.14(4)^2$
$= 3.14(16)$
$= 50.24$

Total Surface Area = cylinder + Prism - 2(Overlap area)

$= \quad 477.28 + 2200 \; cm^2 - 2(50.24cm^2)$

$= \quad 477.28 + 2200 \; cm^2 - 100.48 \; cm^2$

$= \qquad 2677.28 \; cm^2 - 100.48 \; cm^2$

$= \qquad 2576.8 \; cm^2$

8

14 cm

5 cm

5 cm

26 cm
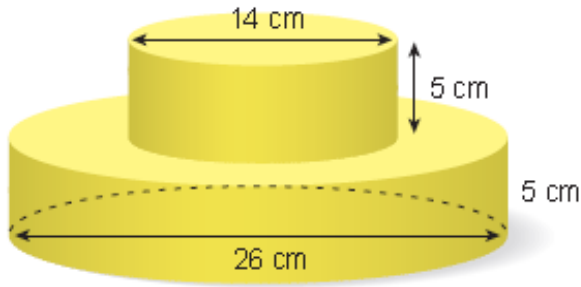
$$2\pi r^2 + 2\pi rh$$

$$2 \times 3.14 \times 7^2 + 2 \times 3.14 \times 7 \times 5$$

$$307.72 + 219.8$$

$$527.52\,cm^2$$

$$2\pi r^2 + 2\pi rh$$

$$2 \times 3.14 \times 13^2 + 2 \times 3.14 \times 13 \times 5$$

$$1061.32 + 408.2$$

$$1469.52\,cm^2$$

$$527.52\,cm^2 + 1469.52\,cm^2$$

$$1689.32\,cm^2$$

$$2 \times 3.14 \times 7^2$$

$$-307.72$$

Class / Homework

Practice Page 40 - 43

Questions :

page 40

3a

3b

3c

3d