Curriculum Outcome

(N5) Determine the square root of positive rational numbers that are perfect squares.

(N6) Determine an approximate square root of positive rational numbers that are non-perfect squares.

(SS2) Determine the surface area of composite 3-D objects to solve problems

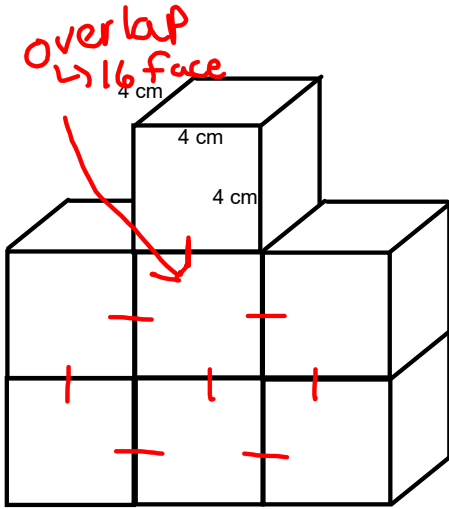(N4) **Explain and apply the order of operations, including exponents, with and without technology.**

Take out a pencil and calculator!!!

Separate desk

Calculate the surface area of the following
(Show all work)

4 cm
4 cm
4 cm

Calculate the surface area of the following

(Show all work)

overlap
→ 16 face

4 cm

4 cm

4 cm

$A = 16\ cm^2$

4
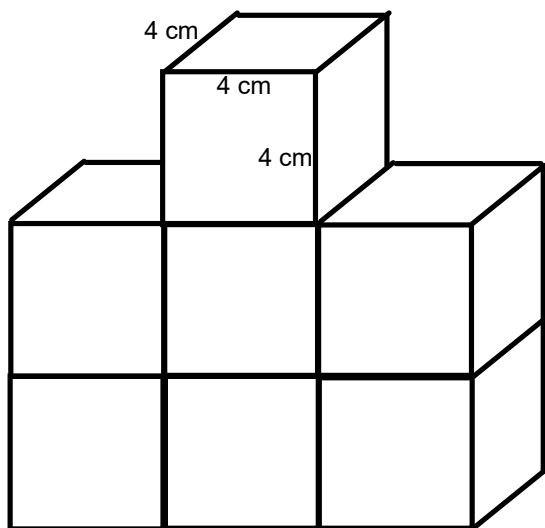
7 cube × 6 faces

$= 42\ faces - 16\ faces$

$= 26\ faces$

$\times\ 16\ cm^2$

$T_{SA} = 416\ cm^2$

Class/ Homework

Let's go over last night's homework

page 31

Questions: 4

8ac   MUST SHOW ALL WORK

Homework Solutions
Page 30

4a) Area of a single face = 1 unit^2

0f cubes = 3

Total number of faces = 6 x 3 = 18 faces

# of overlaps = 2
# of faces that disappear = 2(2) = 4

# of visible faces = 18 -4
= 14 Faces
x 1 unit^2

Total SA = 14 unit^2

4b) Area of a single face = 1 unit^2

0f cubes = 4

Total number of faces = 6 x 4 = 24faces

# of overlaps = 3
# of faces that disappear = 2(3) = 6

# of visible faces = 24-6
= 18 Faces
x 1 unit^2

Total SA = 18 unit^2

4c) Area of a single face = 1 unit^2

0f cubes = 5

Total number of faces = 6 x 5= 30faces

# of overlaps = 4
# of faces that disappear = 242) = 8

# of visible faces = 30 -8
= 22 Faces
x 1 unit^2

Total SA = 22 unit^2

4d) Area of a single face = 1 unit^2

0f cubes = 5

Total number of faces = 6 x 5 = 30faces

# of overlaps = 5
# of faces that disappear = 2(5) = 10

# of visible faces = 30-10
= 20 Faces
x 1 unit^2

Total SA = 20 unit^2

6

Homework Solutions
Page 30 continued...

4e) Area of a single face = 1 unit^2

0f cubes = 5

Total number of faces = 5 x 6 = 30faces

# of overlaps = 4
# of faces that disappear = 2(4) = 8

# of visible faces = 30-8

 = 22 Faces
 x 1 unit^2

Total SA = **22 unit^2**

4f) Area of a single face = 1 unit^2

0f cubes = 6

Total number of faces = 6 x 6 = 36faces

# of overlaps = 5
# of faces that disappear = 2(5) = 10

# of visible faces = 36-10

 = 26 Faces
 x 1 unit^2

Total SA = **26 unit^2**

5i) Area of a single face = 1 unit^2

0f cubes = 5

Total number of faces = 6 x 5 = 30 faces

Total Area of all cubes = 30 faces x (1unit^2)
 = 30 units^2

# of overlaps = 5
# of faces that disapear = 2(5) = 10

area of disapearing faces = 10 x 1 units^2
 = 10 units^2

Total SA = 30 units^2 - 10 units^2
 = 20 units^2

5ii) Area of a single face = 1 unit^2

0f cubes = 5

Total number of faces = 6 x 5 = 30 faces

Total Area of all cubes = 30 faces x (1unit^2)
 = 30 units^2

# of overlaps = 5
# of faces that disapear = 2(5) = 10

area of disapearing faces = 10 x 1 units^2
 = 10 units^2

Total SA = 30 units^2 - 10 units^2
 = 20 units^2

8 a)

1 cm
2 cm
1 cm
2 cm
3 cm
5 cm

Big: $(5 \times 3 \times 2)$

| 2 3 | 2 2 | 2 2 |
| 5 | 3 | 5 |
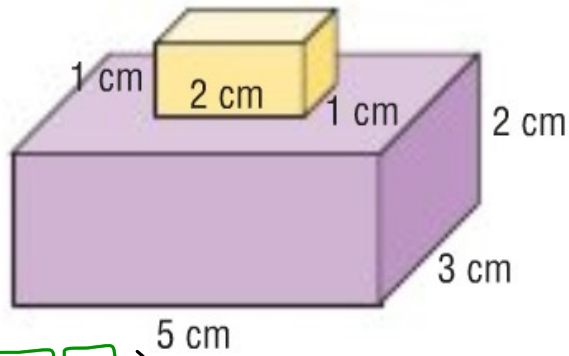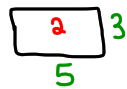
$A = b \times h$

$A = 5 \times 3$

$A = 15$

$2A = 30 \, cm^2$

$A = b \times h$

$A = 3 \times 2$

$A = 6$

$2A = 12 \, cm^2$

$A = b \times h$

$A = 5 \times 2$

$A = 10$

$2A = 20 \, cm^2$

$SA = 30 + 12 + 20$
$SA = 62 \, cm^2$

small: $(1 \times 2 \times 1)$

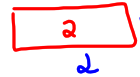| 2 2 | 2 1 | 2 1 |
| 1 | 2 | 1 |

$A = b \times h$
$A = 1 \times 2$
$A = 2$
$2A = 4 \, cm^2$

$A = b \times h$
$A = 1 \times 2$
$A = 2$
$2A = 4 \, cm^2$

$A = b \times h$
$A = 1 \times 1$
$A = 1$
$2A = 2 \, cm^2$

$SA_2 = 4 + 4 + 2$
$\quad = 10 \, cm^2$

$T_{SA} = SA_1 + SA_2 - overlap$

$\quad = 62 + 10 \qquad - 4$
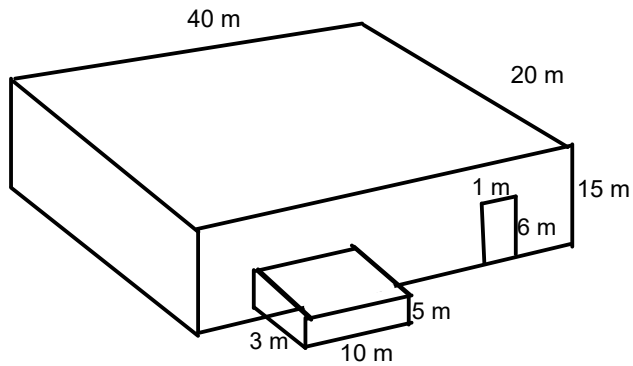
$\quad = 68 \, cm^2$

See Page 29
Example 3

Warehouse Question

Find the area of the warehouse with the attached storage space.

(WAREHOUSE QUESTION YOU DO NOT INCLUDE WINDOWS DOORS AND FLOORS)

40 m

20 m

Door Area

1 m   15 m

6 m

5 m

3 m   10 m

Step 1) Calculate the surface are of the larger prism,

Step 2) Calculate the surface are of the smaller prism,

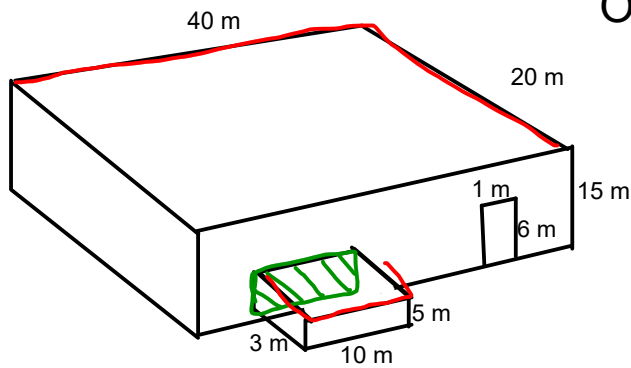Step 3) Calculate the Total Surface Area

Tsa= big + small - overlap -floors - doors

●

Find the area of the warehouse with the attached storage space.

(WAREHOUSE QUESTION YOU DO NOT INCLUDE WINDOWS DOORS AND FLOORS)

Option 1

40 m

20 m

Door Area

1×6

$6m^2$

1 m   15 m

6 m

5 m

3 m   10 m

Step 1) Calculate the surface are of the larger prism,   40, 20, 15

10 | **2** |
40

$A = b \times h$

$A = 40 \times 20$

$A = 800$

$2A = 1600$

15 | **2** |
40

$A = b \times h$

$A = 40 \times 15$

$A = 600$

$2A = 1200$

15 | **2** |
20

$A = b \times h$

$A = 15 \times 20$

$A = 300$

$2A = 600$

$SA_1 = 1600$
$ 1200$
$ \underline{600}$
$ 3400 \; m^2$

Step 2) Calculate the surface are of the smaller prism,

3 | **2** |
10

$A = b \times h$

$A = 3 \times 10$

$A = 30$

$2A = 60$

3 | **2** |
5

$A = b \times h$

$A = 3 \times 5$

$A = 15$

$2A = 30$

5 | **2** |
10

$\rightarrow$ overlap

$A = b \times h$

$A = 5 \times 10$

$A = 50$

$2A = 100$

$SA = 100$
$ 30$
$ \underline{60}$
$ 190 \; m^2$

Step 3) Calculate the Total Surface Area

Tsa= big + small - overlap -floors - doors

3400 + 190 - 100 - (800) - 30 - 6

$= 2654 \; m^2$

Find the area of the warehouse with the attached storage space.

(WAREHOUSE QUESTION YOU DO NOT INCLUDE WINDOWS DOORS AND FLOORS)

Option 2

40 m

20 m

Door Area

1×6

$6m^2$

1 m   15 m

6 m

5 m

3 m   10 m

Step 1) Calculate the surface are of the larger prism, $40, 20, 15$

10 | 1 | 15 | 2 | 15 | 2 |
40   40   20

$A = b \times h$ $A = b \times h$ $A = b \times h$ $SA_1 = 1600$
$A = 40 \times 20$ $A = 40 \times 15$ $A = 15 \times 20$ 1200
$A = 800$ $A = 600$ $A = 300$ 600
                  $2A = 1200$ $2A = 600$ $\underline{2600 \ m^2}$

Step 2) Calculate the surface are of the smaller prism,

3 | 1 | 3 | 2 | 5 | 2 |
10   5   10

$A = b \times h$ $A = b \times h$ $A = b \times h$ $SA = 100$
$A = 3 \times 10$ $A = 3 \times 5$ $A = 5 \times 10$ 30
$A = 30$ $A = 15$ $A = 50$ 60
                  $2A = 30$ $2A = 100$ $\underline{160} \ m^2$

Step 3) Calculate the Total Surface Area

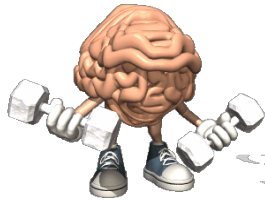## Tsa= big + small - overlap -~~floors~~ - doors
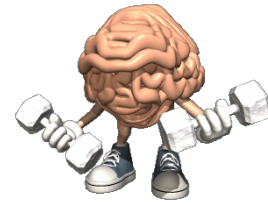
$= 2600 - 160 - 100 - 6$

$= 2654 \ .m^2$

•

Class/ Homework

page 31

Questions: 8b

MUST SHOW ALL WORK
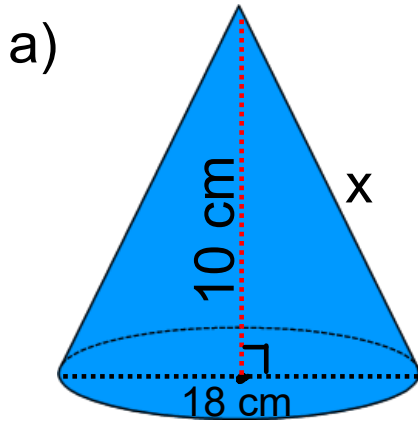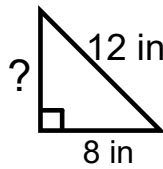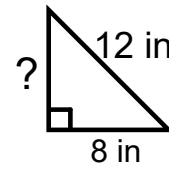
Grade 9 Warm Up

Remember: $c^2 = a^2 + b^2$
$b^2 = c^2 - a^2$

a)

10 cm

x

18 cm

x

$SA = \pi r^2 + \pi rs$

b)

12 in

8 in

14 in

? 12 in

8 in

? 12 in

8 in