NOVEMBER 24, 2015

UNIT 3: SQUARE ROOTS AND SURFACE AREA

SECTION 1.3: SURFACE AREAS OF OBJECTS MADE FROM RIGHT RECTANGULAR PRISMS

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MATH 9

WHAT'S THE POINT OF TODAY'S LESSON?

We will continue working on the Math 9 Specific Curriculum Outcome (SCO) "Shape and Space 2" OR "SS2" which states:

SS2: "Determine the surface area of composite 3-D objects to solve problems."

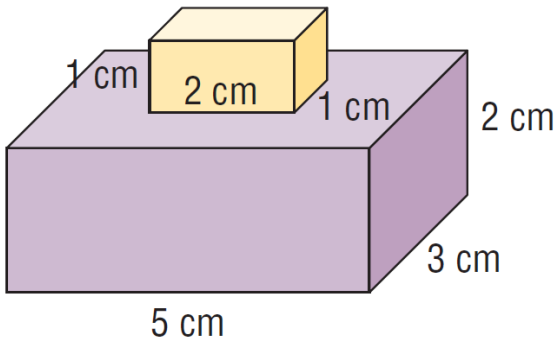
What does THAT mean???

SCO SS2 means that we will stack two or more 3-D objects (right rectangular prisms, right triangular prisms, right cylinders) on top of each other. We will find the area of each face (side) of each object then add them all up to find the total surface area of the object. We will also have to subtract any overlapping sides from the total.

You only need to remember 6 formulas in the surface area section of this unit which you already knew before grade 9:

1. **Area of a rectangle/square:** bh
2. **Area of a triangle:** $\frac{bh}{2}$
3. **Area of a circle:** πr^2
4. **Circumference of a circle:** $2\pi r$ OR πd
5. **The Pythagorean Theorem:** $a^2 + b^2 = c^2$
6. **Surface Area of a Cylinder:** $2\pi r^2 + 2\pi rh$

HOMEWORK QUESTIONS???
(pages 30 / 31 - #6 and #8ab)



SA = Top + Bottom

= (FIB + LIR) + (TIB + FIB + LIR)

= (2bh + 2bh) + (2bh + 2bh + 2bh)

= [2(2)(1) + 2(1)(1)] +
[2(5)(3) + 2(5)(2) + 2(3)(2)]

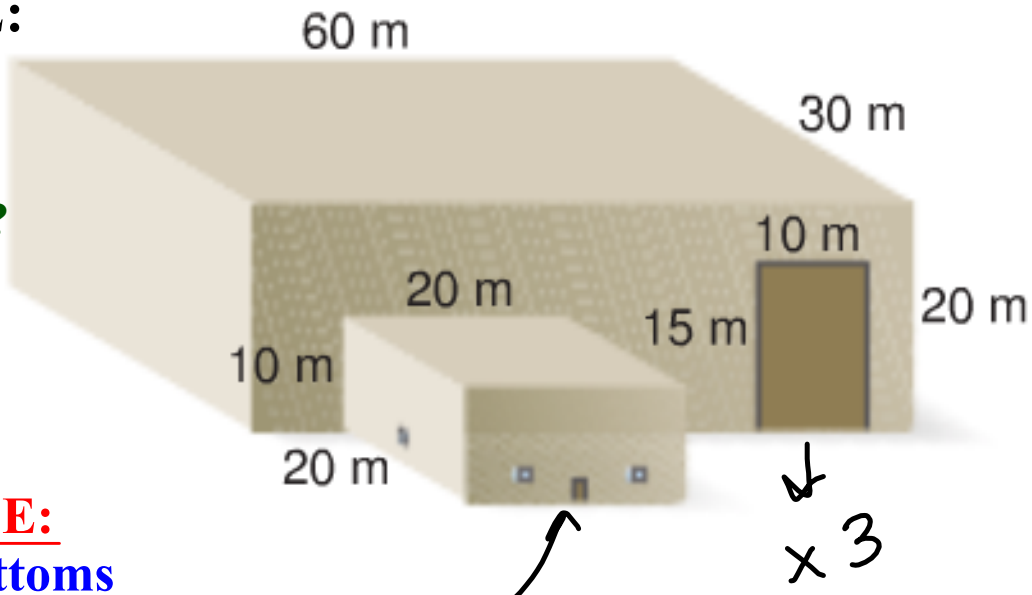
= (4 + 2) + (30 + 20 + 12)

= 6 + 62

= 68 cm^2

EXAMPLE:

COST TO PAINT @ $2.50/m^2?



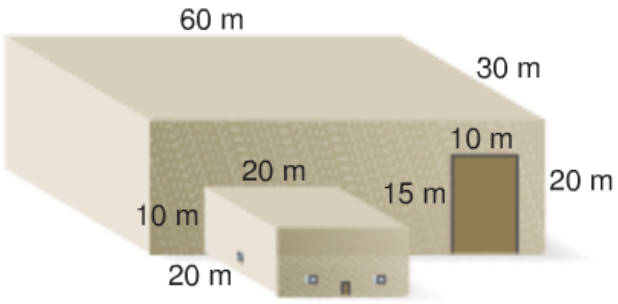
EXCLUDE:

roofs / bottoms

office door with area 2m^2

3 loading doors, each measuring 10m by 15m

4 windows, each with area 1m^2 *



$SA = (\text{Warehouse} + \text{Office}) - (\text{Windows} + \text{Doors})$

$= [(FIB + LIR) + (LIR)] - (W + D)$

$= [(2bh + 2bh) + (2bh)] - (W + 3bh)$

$= [2(20)(60) + 2(20)(30) + 2(20)(10)] -$

$[4(1) + 2 + 3(10)(15)]$

$= (2400 + 1200 + 400) - (4 + 2 + 450)$

$= 4000 - 456$

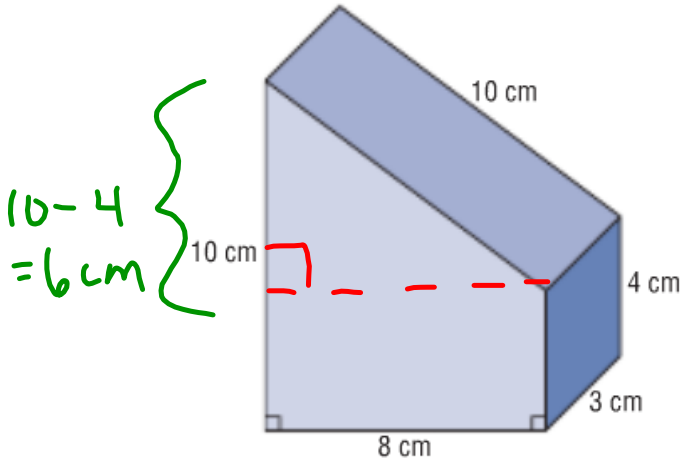
$= 3544\ m^2$

$\text{Cost} = 3544\ m^2 \times \$2.50/m^2$

$= \$8860.00$

Page 34, Example 1:

Determine the surface area of this object.



10 − 4 = 6 cm

SA = Triangular Prism + Rectangular Prism

$= (T + F|B + L) + (B + F|B + L|R)$

$= \left[bh + 2\left(\frac{bh}{2}\right) + bh\right] + (bh + 2bh + 2bh)$

$= [3(10) + 8(6) + 3(6)] + [8(3) + 2(8)(4) + 2(3)(4)]$

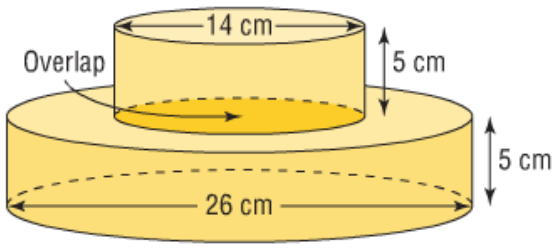
$= (30 + 48 + 18) + (24 + 64 + 24)$

$= 96 + 112$

$= 208\ cm^2$

Page 36, Example 2:

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



Radius = $\frac{\text{Diameter}}{2}$

$= \frac{14}{2}$

$= 7\text{ cm}$

NOTE: NO icing underneath bottom layer or in between layers.

$SA = \text{Top} + \text{Bottom}$

$= (\text{Tube}) + (\text{Top} + \text{Tube})$

$= (2\pi rh) + (\pi r^2 + 2\pi rh)$

$= [2\pi(7)(5)] + [\pi(13^2) + 2\pi(13)(5)]$

$\doteq (219.9115) + (530.9292 + 408.407)$

$\doteq 219.9115 + 939.3362$

$\doteq 1159.2477\text{ cm}^2$

$\doteq 1159\text{ cm}^2$

CONCEPT REINFORCEMENT:

MMS9
PAGE 31: #10
PAGE 40: #3cd

***For #10a, exclude bottoms only.**
***For #10b, you will now remove roofs, window and doors.**

HOMEWORK CHECK
WEDNESDAY, NOV. 25!!!