NOVEMBER 19, 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???

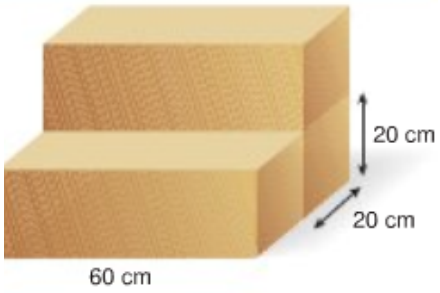
SCO SS2 means that we will stack two or more 3-D objects (right rectangular prisms, right triangular prisms, right cylinders) on top of each other. We will find the area of each face (side) of each object then add them all up to find the total surface area of the object. We will also have to subtract 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:** $2\pi r^2 + 2\pi rh$

WARM-UP:

Renee uses 3 pieces of foam to make this chair.
Each piece of foam is a right rectangular prism with dimensions 60 cm by 20 cm by 20 cm.
Can Renee cover the chair with 2 m^2 of fabric?
Explain.



20 cm = 0.2 m
60 cm = 0.6 m

$SA = 8bh + 6bh$
$= 8(0.2)(0.6) + 6(0.2)(0.2)$
$= 0.96 + 0.24$
$= 1.2\ m^2$

Yes, Renée has enough fabric to cover the chair.

HOMEWORK QUESTIONS???
(pages 30 / 31 - #5, #6 and #8ab)

8.a) SA = Yellow + Purple

= (F/B + L/R) + (T/B + F/B + L/R)

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

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

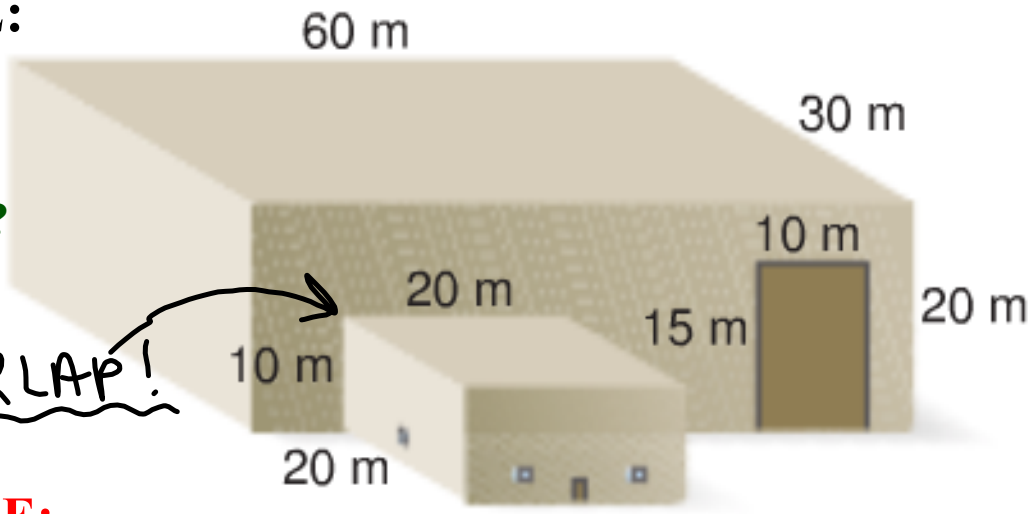
= (4 + 2) + (30 + 20 + 12)

= 6 + 62

= 68 cm^2

EXAMPLE:

COST TO PAINT @ $2.50/m²?



* OVERLAP!

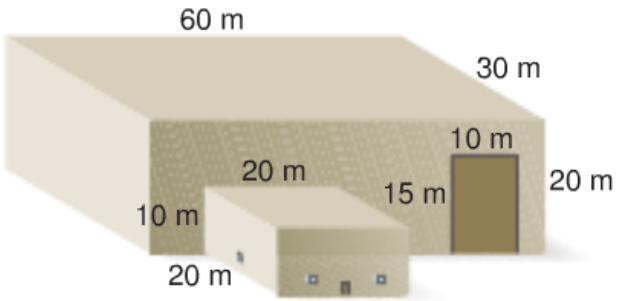
EXCLUDE:

roofs / bottoms

office door with area 2m² *

***(3) loading doors, each measuring 10m by 15m**

(4) windows, each with area 1m² (4m²)



$SA = (\text{Large} + \text{Small}) - (\text{Doors} + \text{Windows})$

$= [(FlB + LlR) + (LlR)] - (D + W)$

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

$= [2(60)(20) + 2(30)(20) + 2(20)(10)] -$
$[2 + 3(10)(15) + 4(17)]$

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

$= 4000 - 456$

$= 3544\ m^2$

Cost: $3544 \times \$2.50/m^2$

$= \$8860.00$

CONCEPT REINFORCEMENT:

MMS9
PAGE 31: #10 & #11

***For #10a, exclude bottoms only.**
***For #10b, you will now remove roofs, window and doors.**
***For #11, exclude bottoms only.**

HOMEWORK CHECK MONDAY, NOV. 23!!!