

NOVEMBER 16, 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 5 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: $a^2 + b^2 = c^2$**

WARM-UP: Page 145, #22a

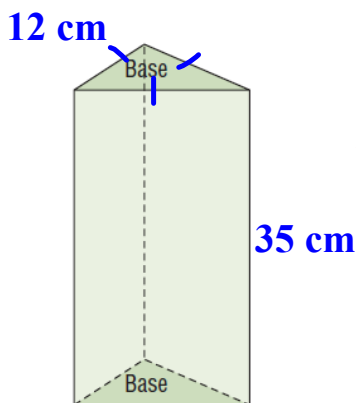
$$\begin{aligned} SA &= T|B + F|B + L|R \\ &= 2bh + 2bh + 2bh \\ &= 2(25.3)(15.2) + 2(25.3)(9.7) \\ &\quad + 2(15.2)(9.7) \\ &= 769.12 + 490.82 + 294.88 \\ &= 1554.82 \text{ cm}^2 \end{aligned}$$

Page 23: Try "Check" #1 on your own.

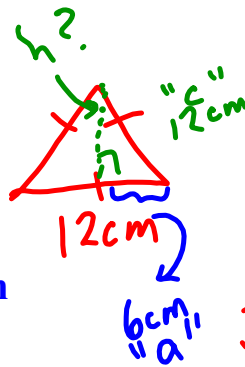
Check

1. A right triangular prism is 35 cm high. Its bases are equilateral triangles, with side lengths 12 cm. What is the surface area of the prism?

Diagram:



Calculations:



$$a^2 + b^2 = c^2$$

$$6^2 + h^2 = 12^2$$

$$36 + h^2 = 144$$

$$h^2 = 144 - 36$$

$$\sqrt{h^2} = \sqrt{108}$$

$$h \doteq 10.3923 \text{ cm}$$

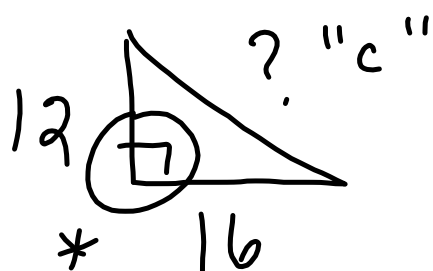
$$S.A. = 2 \left(\frac{bh}{2} \right) + 3bh$$

$$\doteq 12(10.3923) + 3(12)(35)$$

$$\doteq 124.7076 + 1260$$

$$\doteq 1384.7076$$

$$\doteq 1384.7 \text{ cm}^2$$



$$\begin{aligned}a^2 + b^2 &= c^2 \\12^2 + 16^2 &= c^2 \\144 + 256 &= c^2 \\ \sqrt{400} &= \sqrt{c^2} \\20 &= c\end{aligned}$$

CONCEPT REINFORCEMENT:

PYTHAGOREAN THEOREM WORKSHEET
#1 TO #20

**I will be checking homework tomorrow
(Tuesday, Nov. 17)!**