DECEMBER 1, 2015

UNIT 3: SQUARE ROOTS AND SURFACE AREA

TEST PREPARATION
(Test: Wed., Dec. 2, 2015)

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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."

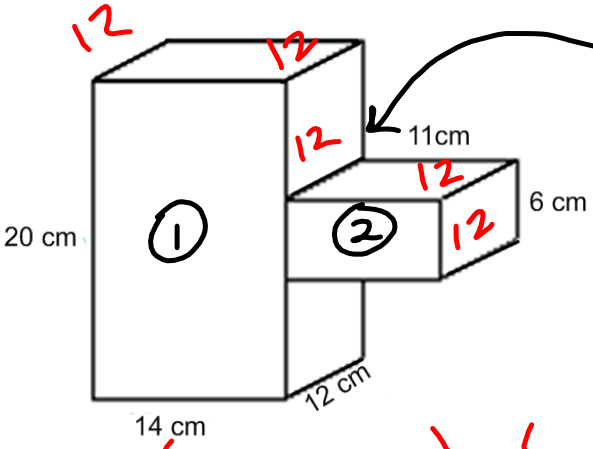
What does THAT mean???

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

Calculate the surface area of the following composite object. Please show **ALL WORK**.



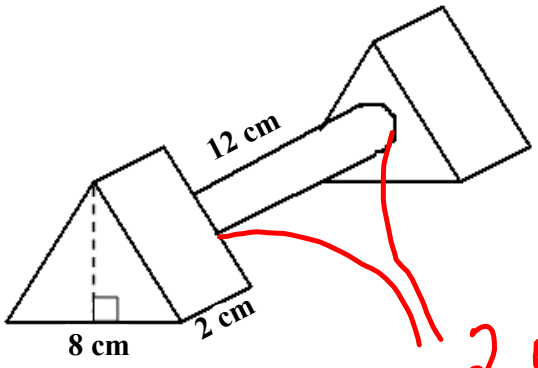
1 overlap - lose 2 sides

$SA = (2 \times 14 \times 12) + (2 \times 14 \times 20) + (2 \times 12 \times 20) + (2 \times 11 \times 12) + (2 \times 11 \times 6)$

$= 336 + 560 + 480 + 264 + 132$

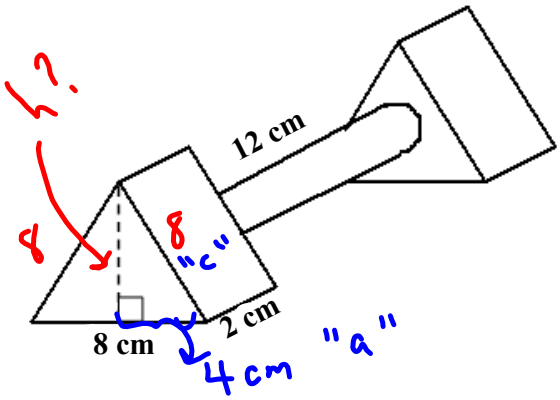
$= 1772\ cm^2$

Calculate the surface area of the following composite object. Please show **ALL WORK**.



2 overlaps – lose 4 sides (4 circles)

Calculate the surface area of the following composite object. Please show **ALL WORK**.



① $a^2 + b^2 = c^2$

$4^2 + h^2 = 8^2$

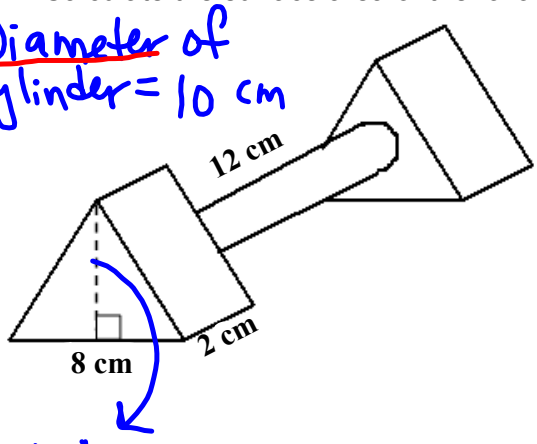
$16 + h^2 = 64$

$h^2 = 64 - 16$

$\sqrt{h^2} = \sqrt{48}$

$h \doteq 6.9282 \text{ cm}$

Calculate the surface area of the following composite object. Please show **ALL WORK**.



Diameter of cylinder = 10 cm

$h \doteq 6.9282$ cm

4 triangles $4\left(\frac{bh}{2}\right)$

6 rectangles $6\,bh$

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

2 overlaps / 4 circles $4\pi r^2$

$$SA = \left[\cancel{4}^{2}\left(\frac{bh}{\cancel{2}}\right) + 6bh + 2\pi r^2 + 2\pi rh\right] - 4\pi r^2$$

$$\doteq \left[2(8)(6.9282) + 6(2)(8) + 2\pi(5^2) + 2\pi(5)(12)\right] - 4\pi(5^2)$$

$$\doteq (110.8512 + 96 + 157.0796 + 376.9911) - 314.1593$$

$$\doteq 740.9219 - 314.1593$$

$$\doteq 426.7626$$

$$\doteq 426.8\ \text{cm}^2$$

TEST PREPARATION - suggested practice questions:
(Test Date: Wednesday, December 2, 2015)

MMS9
PAGE 12: #14
PAGE 18: #4 and 5
PAGE 21: #9
PAGE 31: #10
PAGE 40: #3a
PAGE 45: #3, 4, 5 and 6
PAGE 46: #15 and 16
as well as the extra practice sheet (especially #1, #2 and #6).