

# HW SOL 8.3

March 12, 2018 9:31 AM

Name: Keys

Date: \_\_\_\_\_

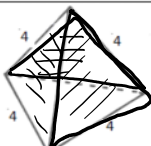
## Math 8 HW Section 8.3 – Surface Areas of 3D Solids

1. Calculate the surface area of each of the following solids:

<p>24 8 <u>32 units<sup>2</sup></u></p>	<p><math>SA = 4 \times 6 - 3(2)</math> <math>= 24 - 6</math> <math>= 18 \text{ units}^2</math></p>	<p><math>SA = 7 \times 6 - 6(2)</math> <math>= 42 - 12</math> <math>= 30 \text{ units}^2</math></p>	<p><math>SA = 7 \times 6 - 6(2)</math> <math>= 30 \text{ units}^2</math></p>
<p>Top - 7 Bottom - 7 Front - 6 Back - 6 Left - 5 Right - 5 <math>SA = (7+6+5)2</math> <math>= 36 \text{ units}^2</math></p>	<p>Top - 6 Bottom - 6 Front - 8 Back - 8 Right - 5 Left - 5 Inside - 2 <math>SA = (6+8+5)2 + 2</math> <math>= 40 \text{ units}^2</math></p>	<p>Top - 7 Bottom - 7 Right - 6 Left - 6 Front - 6 Back - 6 <math>SA = (7+6+6)2</math> <math>= 38 \text{ units}^2</math></p>	<p>Top - 8 Bottom - 8 Right - 5 Left - 5 Front - 6 Back - 6 <math>SA = (8+5+6)2</math> <math>= 38 \text{ units}^2</math></p>


2. Draw a net for each of the following solids and find the surface area:

<p>a)</p> <p>Top - 3 Bottom - 3 Front - 6 Back - 6 Right - 3 Left - 3 <math>SA = 24 \text{ units}^2</math></p>	<p>b)</p> <p>① Pythagorean <math>3^2 + x^2 = 5^2</math> <math>x^2 = 25 - 9</math> <math>x = 4</math></p> <p><math>SA = 5 \times 6 + 3 \times 6 + 4 \times 6 + 4 \times 3</math> <math>= 30 + 18 + 24 + 12</math> <math>= 84 \text{ units}^2</math></p>
<p>SA: Top = <math>6 \times 3 = 18</math> Bottom = 18 Front = <math>3 \times 2 = 6</math> Back = 6 Left = <math>6 \times 2 = 12</math> Right = 12 <math>SA = (18 + 12 + 6)2</math> <math>SA = 72 \text{ ft}^2</math></p>	<p><math>SA = (5 + 4 + 5)2</math> <math>SA = 38 \text{ cm}^2</math></p>



all sides are equal (tetrahedron)

4 EQUILATERAL TRIANGLES



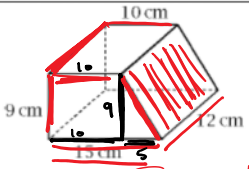
$$4^2 - 2^2 = h^2$$

$$12 = h^2$$

$$\sqrt{12} = h$$

$$A = \frac{\sqrt{12} \times 4 (4)}{2}$$

$$A = 3.46 \times 8$$

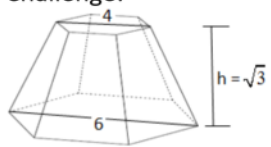


hypotenuse  
 $9^2 + 5^2 = h^2$   
 $81 + 25 = h^2$   
 $106 = h^2$   
 $\sqrt{106} = h$

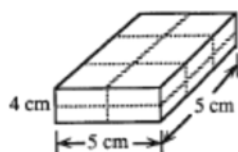
Top =  $10 \times 12 = 120$   
 Bottom =  $15 \times 12 = 180$   
 Left =  $12 \times 9 = 108$

Front/Back =  $\frac{(10+15) \times 9}{2} \times 2 = 225$   
 Right =  $\sqrt{106} \times 12 = 10.3 \times 12$

Challenge:



3. The diagram shows a painted rectangular solid. The solid was then cut along the dotted lines into 12 identical rectangular blocks. What is the total area of all unpainted surface?



4. Bumi wants to cover his quartz crystal with gold leaf. The total height of the crystal is 9cm and can be divided into 3 equal sections. The width of the crystal is 8cm. Bumi thinks he'll need 100cm<sup>2</sup> of gold leaf to cover it. Is it too much, too little or just enough?

