**Volume of Pyramids**

To find the volume of any pyramid:

 find the volume for the prism with the same base and height and then divide by 3.

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| **Pyramid (Square, Rectangular, Triangular Based)**http://www.ajdesigner.com/phpgeometricformulas/pyramid.pngIn this case, the Base of the pyramid is a rectangle.    In this case, the Base of the pyramid is a triangle.    | *B is the area of the base* |

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| **Example 1:** Determine the volume of this pyramid is cm3.M5Q9 | **Example 2:** Determine the volume of this pyramid in m3.  |

**Volume of a Cone**

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| ***Cone*** *– Basically, a circle-based pyramid* |  |

***Example 3:*** Determine the volume of this cone in cm3.

 

***Example 4:*** Determine the volume of this cone in cm3.



**Surface Area of Pyramids**

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| ***Pyramid (Square, Rectangular, Triangular, or any Polygonal Based)***http://images.google.com/images?q=tbn:XyOT6cwl4fTiGM:http://mathworld.wolfram.com/images/eps-gif/J02Net_600.gifIf the Base Area is not given, use the appropriate formula to determine the area.http://mathworld.wolfram.com/images/eps-gif/J01Net_500.gif | Add the area of the base and all the sidesEach side will be a triangle The shape of the base will vary |

***Example 1:*** Determine the surface area of this square based prism in in2.

 

***Example 2:*** Determine the surface area of this rectangular based prism in ft2.

 

***Example 3:*** Determine the surface area of this pentagonal based prism in cm2.

 

**Surface Area of Cones**



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***Example 3:*** Determine the surface area of this cone if the diameter of the base is 3cm and the slant height is 9cm.



***Example 4:*** Determine the surface area of cone if the cone height is 4m, and the radius is 3m.

 

**Volume and Surface Area of Pyramids - Practice**

Round to 1d.p. where necessary

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| a. Find the **volume** and **surface** **area** of a pyramid with a square base of 4cmx4cm and triangle height of 12cm and the pyramid height of 11.83cm.  | b. Find the **volume** and **surface area** of this square based pyramid if pyramid’s height is 2.73 in. |
| c. Find the **surface** **area** of this prism that is created using all equilateral triangles.**3.5** | d. **SA** |
| ANSWERS: a. 112cm2 63.1cm3, b. 21.3in2, c. 28m2, d.52.5ft2 |

**Volume and Surface Area of Cones - Practice**

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| a. | b. |
| c. | 1. If a cone has a volume of 175.84cm3, and a base radius of 5cm, determine the slant height of the cone and calculate the surface area.
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| ANSWERS: a. 885.9 m2, b. 2029.5 cm2, c 1095.9 in2, d. 8.4cm 210.5cm2 |