**Volume of Prisms & Cylinder**

A **prism** is a 3D shape with two identical parallel bases (top and bottom are the same). All other faces are rectangles.

To find the volume of ANY prism, find the area of the base and multiply it by the height.

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| **Any Prism**  **Height (h)**  Image11220  **Height (h)**  **Height (h)**  **Base Area (B)**  **Base Area (B)**  **Base Area (B)** | This formula is for  ANY PRISM:    *B is the area of the base*  *(shaded region on the diagrams)* |

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| **Rectangular Prism**  - also includes cube  V = l × w × h | **Triangular Prism** |

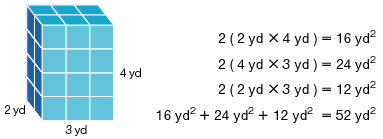
|  |
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| **http://www.justforkidsonly.com/rrefxcylinderlinebhr.jpgCylinder** – Basically, a circle-based prism    *Remember: π = 3.14 (or, there is a π button on your calculator)* |

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| ***Example 1:*** Determine the volume of this prism  http://www.doe.mass.edu/mcas/images/db/05m06q27.gif | ***Example 2:*** Determine the volume of this prism in cm3. |
| ***Example 3:*** Determine the volume of this prism in cm3. | ***Example 4:*** Determine the volume of this prism in cm3. |
| ***Example 5:*** Determine the volume of this cylinder in yd3.  f-525-5a-1  6 yd | ***Example 6:*** Determine the volume of this cylinder in cm3. |

**Surface Area of Prisms**

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| ***Prism (Rectangular/Right***    pic-demoprism | Add the area of all the faces  *A = 2(top + front + side)*  *A = 2(lw + lh + wh)* |

***Example 1:*** Determine the surface area of this prism in yd2.



***Example 2:*** Determine the surface area of this box which has **NO LID.**



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| ***Any Other Prism (e.g. Triangluar)***    triangularprism | Add the area of all the faces  Each side will be a rectangle, Use the Area of a Rectangle formula: *A = L × W*  In this case, the Base of the prism is a triangle. Use the Area of a Triangle formula:    If the Base is not a triangle, the area of the base will be given.  Atotal = Arectangles + 2Abase  = ah + bh + ch + bl |

***Example 3:*** Determine the surface area of this prism in m2.

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**Surface Area of Cylinders**

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| http://www.justforkidsonly.com/rrefxcylinderlinebhr.jpg***Cylinder (Basically – a Circle Based Prism)*** | *A = 2(top) + side*  The top/bottom is a circle |

***Example 1:*** Determine the surface area of this cylinder in yd2.



***Example 2:*** Determine the surface area of this drinking glass.



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

  
Find the volume & surface area of the following shapes (round to 1d.p. where needed):

|  |  |
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| a. | b. |
| c. | d. A rectangular prism has a length of 16cm and a height of 12m. If the surface area of this prism is 664m2, determine the width and volume. |
| e.A toy chest is in the shape of a rectangular prism. Determine the surface area of the toy chest. | f. A piece of cheese is in the shape of an isoceles triangular prism. The cheese needs to be wrapped with saran wrap. Determine the surface area of the cheese to find out how much wrap would cover this cheese. |
| ANSWERS: a. 73.5in2, b. 132cm2, c. 82.2m2, d. 5m, e. 55.5ft2, f. 299.2cm2 | |

**Surface Area of Cylinders – Practice**

Find the surface area of the following shapes. Round answers to 1d.p.where necessary. Use 3.14 or the pi button for π.

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| a.Find the surface area of a cylinder with a height of 3m and a diameter of 3m | b. |
| c. | d.If a cylinder has a surface area of 178.98cm2, and a radius of 3cm, determine the height of the cylinder. |
| ANSWERS: a. 42.4m2, b.99.5cm2, c. 439.6in2, d. h=6.5cm | |