

Geometry Formula Sheet & Labeling Diagrams

标记图表创建几何公示表

Introduction 简介

In this project you will focus on several different technical skills that will help you create a variety of technical documents. To complete this project you will create a document with **tables**, insert objects into **cells**, label **diagrams** using the “**text box**” tool, format objects using the “properties” window, and create mathematical equations using the “**formula editor**” tool.

本项目将重点学习几种不同的技术技能来创建各种技术文档。要完成此项目，需创建一个含有表格的文档，将对象插入表格单元格，使用“文本框”工具标记图表，使用“属性”窗口格式化对象，并使用“公式编辑器”工具创建数学方程。

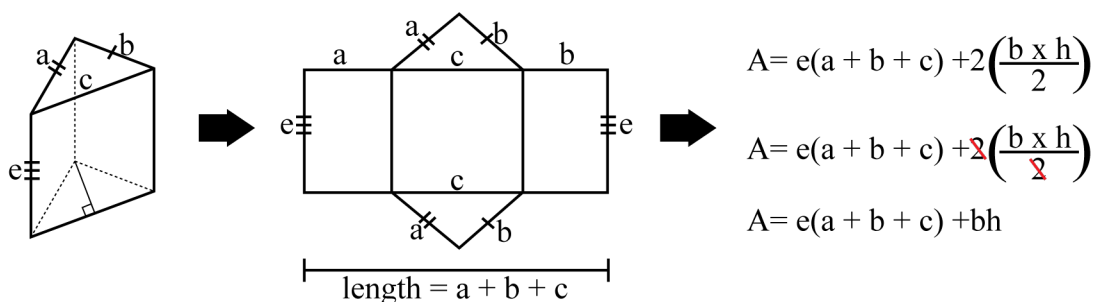
Building A Geometric Proof 创建几何证明

The formulas for two-dimensional geometric shapes are relatively straightforward; however, understanding these formulas is important since they are the foundational principles of three-dimensional geometry.

二维几何图的公式相对简单；然而，理解这些公式很重要，因为它们三维几何的基本原理。

Every formula that you need to complete this project has been provided in the “**Project: Geometry Math Sheet**” example with the exception of two; however, the method used to build a three-dimensional “**Geometric Proof**” is shown below. In the example the “**Proof**” to determine the surface area of a “**Triangular Prism**” is shown. To complete this project you will need to use the follow these steps create the “**Geometric Proof**” to calculate the surface area and volume of a “**Cylinder**” on your own.

下面的“项目：几何数学表”示例中提供了完成此项目所需的每个公式，但两个除外；然而，用于构建三维“几何证明”的方法如下所示。示例中给出了确定“三棱柱”表面积“证明”。要完成此项目，需要按照以下步骤创建“几何证明”，并自行计算“圆柱体”的表面积和体积。



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When unfolded a “**Triangular Prism**” creates 3 simple shapes, two triangles of equal size, and one large rectangle. The area of the rectangle can be calculated by determining the length of the the three sides of the triangle and the elevation of the Prism; therefore the equation to determine the area of this large rectangular area is “ $A = e(a + b + c)$ ”. Since there are two triangles the area for a triangle is multiplied by a value of 2. Since the base and the hight of the triangle is divided by a value of two (2), and there are two (2) triangles, these values will cancel each other out. Therefore the final formula is:

当展开一个“三棱柱”时，它是由3个简单的形状，两个大小相等的三角形和一个大矩形组成的。矩形的面积可以通过确定三角形三条边的长度和棱柱的高度来计算；因此，确定这个大矩形区域面积的方程式是“ $A = e (A + b + c)$ ”。因为有两个三角形，那么三角形的面积要乘以2。因为三角形的底面和高除以两（2）个值，并且有两（2）个三角形，所以这些值将相互抵消。因此，最终公式为：

$$“A = e(a + b + c) + bh”$$

Additional Resources 额外资源

If you are using a word processor that does not have a formula editor tool, you can create formulas and export them as an image for free at:

如果你使用的文字处理器没有公式编辑器工具，可以通过以下链接以图片的形式免费导出创建的公式：

<http://www.codecogs.com/latex/eqneditor.php>

You can also use the WolframAlpha Conceptual Knowledge Engine to research different topics related to the math and sciences. You can solve equations by entering them into the search field, or you can search for answers on a topic question as well. If you are unable to determine the two missing formulas on your own try entering this search request “surface area of a cylinder” and see what you get. The website for WolframAlpha is:

还可以使用WolframAlpha概念知识引擎来研究与数学和科学相关的不同主题，在搜索区输入方程或搜索主题问题的答案。如果无法自行确定缺少的两个公式，尝试输入求“圆柱体的表面积”，然后查看搜索结果。WolframAlpha的网站是：

<http://www.wolframalpha.com>

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Project Instructions 项目说明

- Change the document type to A4
将文档类型更改为A4
- Create an MLA formatted document that has:
创建具有以下内容的MLA格式文档
 - A header with your last name auto page #
带有本人姓氏的页眉自动页面#
 - A project leader with your full name, teacher, class and date
项目负责人姓名、老师、班级和日期
 - A project title
项目名称
 - A footer with the schools name
带有学校名称的页脚
- Use tables to effectively organize information
使用表格有效地组织信息
- Insert all required diagrams in the correct locations
在正确的位置插入所有图表
- Label all diagrams properly using the **text box** tool
使用文本框“工具”正确标记所有图表
- Format objects using the “properties” window
使用“属性”窗口格式化对象
- Use the formula editor tool to create all required formulas
使用公式编辑器工具创建所有必需的公式

When you are done your assignment save the document as:

按照以下格式命名文档:

“First Name”_“Last Name”_Geometry.docx

Geometry Formula Sheet & Labeling Diagrams

标记图表创建几何公示表

Project: Geometry Math Sheet - Page 1 (Front) 项目: 几何数学表-第1页 (正面)

Last Name auto page #

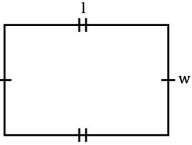
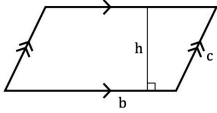
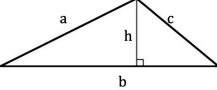
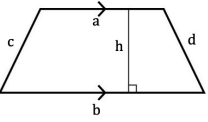
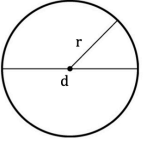
Name:

Teacher:

Class:

Date:

(Your Name)'s Geometry Formula Sheet

Geometric Figure	Perimeter	Area
<p>Rectangle</p> 	$P = l + l + w + w$ <p style="text-align: center;">or</p> $P = 2(l + w)$	$A = lw$
<p>Parallelogram</p> 	$P = b + b + c + c$ <p style="text-align: center;">or</p> $P = 2(b + c)$	$A = bh$
<p>Triangle</p> 	$P = a + b + c$	$A = \frac{bh}{2}$ <p style="text-align: center;">or</p> $A = \frac{1}{2}bh$
<p>Trapezoid</p> 	$P = a + b + c + d$	$A = \frac{(a + b)h}{2}$ <p style="text-align: center;">or</p> $A = \frac{1}{2}(a + b)h$
<p>Circle</p> 	$C = \pi d$ <p style="text-align: center;">or</p> $C = 2\pi r$	$A = \pi r^2$

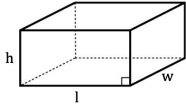
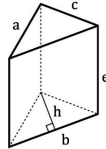
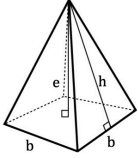
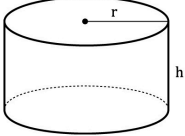
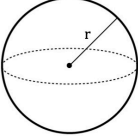
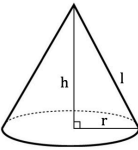
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Geometry Formula Sheet & Labeling Diagrams

标记图表创建几何公示表

Project: Geometry Math Sheet - Page 2 (Back) 项目: 几何数学表-第2页 (背面)

Last Name auto page #

Geometric Figure	Surface Area	Volume
Rectangular Prism 	$S = 2hl + 2wh + 2lw$ or $S = 2(hl + wh + lw)$	$V = lwh$
Triangular Prism 	$S = e(a + b + c) + 2(\frac{bh}{2})$ or INSERT FORMULA FROM EXAMPLE	$V = \frac{1}{2}bhe$ or $V = \frac{bhe}{2}$
Square Pyramid 	$S = b^2 + 4(\frac{bh}{2})$ or $S = b^2 + 2bh$	$V = \frac{1}{3}b^2e$ or $V = \frac{b^2e}{3}$
Cylinder 	CREATE THE PROOF & INSERT FORMULA	CREATE THE PROOF INSERT FORMULA
Sphere 	$S = 4\pi r^2$	$V = \frac{4}{3}\pi r^3$ or $V = \frac{4\pi r^3}{3}$
Cone 	$S = \pi r^2 + \pi rl$	$V = \frac{1}{3}\pi r^2 h$ or $V = \frac{\pi r^2 h}{3}$

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