

Explorations

In The News: Geometry Gems

Find an article that utilizes values for area, volume, or surface area. Check the calculations and show how the total area or volume was computed. (You might have to find an article that references a common item or has the dimensions available).

Exercise 1

1. Find a real example of each of the following, around your home, work, or campus, and describe the example in detail or print a picture:
 - Isosceles triangle
 - Equilateral triangle
 - Scalene triangle
 - Regular polygon
 - Pentagon
 - Hexagon
 - Heptagon
 - Octagon
 - Parallelogram
 - Rhombus
 - Rectangle
 - Square
 - Trapezoid
 - Point
 - Line segment
 - Right angle
 - Acute angle
 - Obtuse angle

- Straight angle
 - Vertical angles
 - Complementary angles
 - Supplementary angles
 - Rectangular solid
 - Cube
 - Pyramid
 - Right circular cylinder
 - Cone
 - Sphere
 - Similar Triangles
2. Find the perimeter of 3 of the above figures.
 3. Find the total degree of all angles and individual angle measurements of your regular polygon.
 4. Find the area of 3 of your figures.
 5. Find the volume of 3 of the above figures.
 6. Find the surface area of 2 of the above figures.
 7. How might geometry be used to build a feeling of community?
 8. How can geometry be used to promote responsible stewardship?

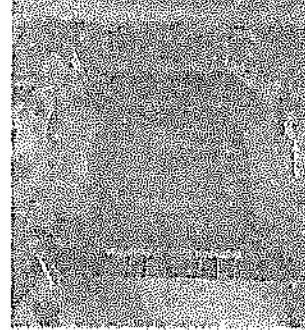
Here is an example of what you should be doing in this exercise:

Octagon

Raymond James Stadium (Scale Model)

An octagon is a polygon that has eight sides.

Perimeter = sum of all sides
 $25'' + 10'' + 10'' + 36'' + 36'' + 10'' + 10'' + 25''$
 $= 172''$ or $14' 4''$



Writing Across the Curriculum

1. Write a report illustrating how geometry is used in industry. Be sure to include how the values of community, responsible stewardship, and excellence affect the industry you researched.
2. Compare and contrast how a designer and architect might use geometry. How does Geometry effect the community from the designer and architect perspective?
3. Bigger is often cheaper per item or amount. For example, buying food in bulk. We see this with the growth in the number of warehouse clubs that sell items in larger quantities for a lower per item cost. What are some situations when bigger is not better, even when it is cheaper.

Exercise 2

Create a three dimensional figure. Label all relevant dimensions. Calculate the area of each face, the

number of vertices, the perimeter of each face, the total surface area, and the volume. Express your results in both the English and Metric system.

Critical Thinking:

1. What is one shape you think everyone sees every day? Where are some of the places you think they see it? Who is everyone in your response?
2. What is one shape you think very few people know about, and why?
3. What is one shape you see regularly but that you never noticed until this class?