

INTEGRATING MATH IN THE REAL WORLD

THE MATH OF HOMES AND OTHER BUILDINGS

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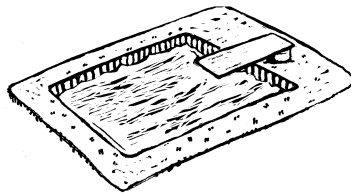
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The Mathematics of Swimming Pools

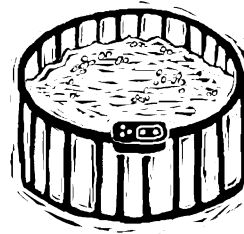
Filling a swimming pool takes lots of water. Just how much water? Use the value 3.14 for π and calculate the volume of these swimming pools in cubic feet. Convert cubic feet to gallons and round to the nearest whole gallon. If water costs \$5 per 1,000 gallons, how much would it cost to fill the swimming pools?

1 cubic foot = 7.418 gallons



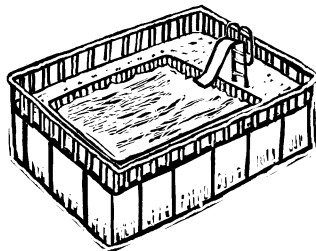
Diving Pool

Width 40 feet
 Length 40 feet
 Depth 15 feet
 Cubic feet = _____
 Gallons = _____
 Cost to fill = _____



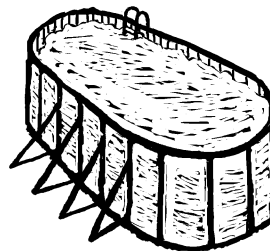
Hot Tub

Diameter 10 feet
 Depth 4 feet
 Cubic feet = _____
 Gallons = _____
 Cost to fill = _____



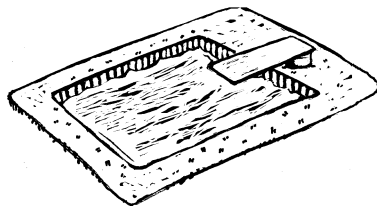
Backyard Pool (rectangular)

Width 20 feet
 Length 40 feet
 Depth 4 feet
 Cubic feet = _____
 Gallons = _____
 Cost to fill = _____



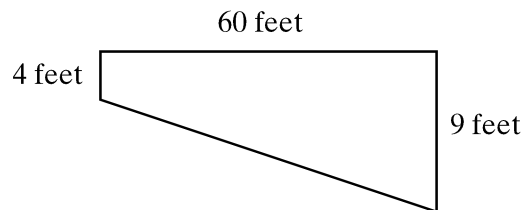
Backyard Pool (semicircular ends)

Width 12 feet
 Length 40 feet
 Depth 5 feet
 Cubic feet = _____
 Gallons = _____
 Cost to fill = _____



In-Ground Pool

Width 30 feet
 Length 60 feet
 Depth 4 feet to 9 feet
 Cubic feet = _____
 Gallons = _____
 Cost to fill = _____

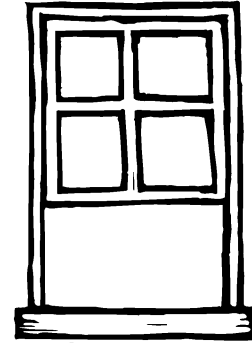


Use area of trapezoid multiplied by the width of the pool to find the volume in cubic feet.



The Mathematics of Windows

What size are the windows of your classroom? Are the classroom windows the same size as the windows in your home? Are all the windows where you live the same size? Windows are manufactured in many sizes and styles. A builder must be able to communicate the size windows needed. A classification system has been developed to help builders and window suppliers.



Windows are assigned a code number that corresponds to the size of a window. The code gives the width of the window and then the height. A window might be 2846. This is read as 2 feet 8 inches as the width of the window and 4 feet 6 inches as the height of the window. The 2846 window is called a two eight, four six. (Do not confuse 2846 to mean 28 inches by 46 inches.)

In the chart below, determine the width and height of a window in feet and inches. Change feet and inches to inches and calculate the area and the perimeter of the window.

Window Code	Window Width	Window Height	Width in Inches	Length in Inches	Perimeter in Inches	Area in Inches
2846	2'8"	4'6"	32	54	172	1,728
3444						
3852						
4468						
2646						
3268						
32410						
8068						