

Name:

Date:

Space Station

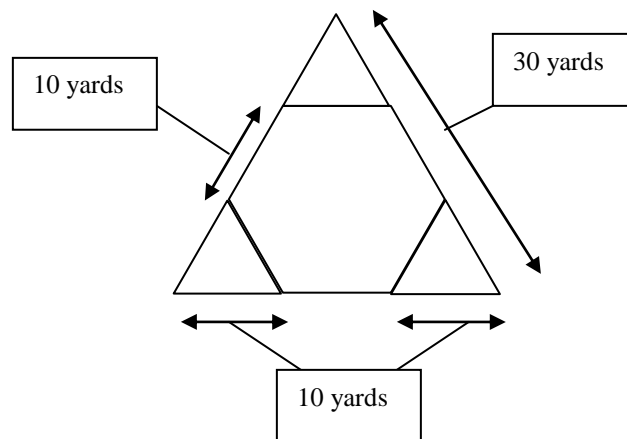
(NS04/ME02/SR02/CU02)

 On-Demand (Check One) Yes No

The head of the Antarctica's space program, Willis G. Shrub, is designing a space station to orbit Earth. After much consideration, the decision was made to build a giant cube called *The Cube of Destiny*.

Willis is designing a reinforced glass window for the space station. The window design has two parts: a regular hexagon with side measurements of 10 yards that will be tinted orange, and three equilateral triangles with side measurements of 10 yards that will be tinted purple.

Glass Window Design



Formula for Area of a Regular Hexagon	Formula for Area of an Equilateral Triangle
$Area = \frac{3\sqrt{3}}{2} a^2$	$Area = \frac{\sqrt{3}}{4} a^2$
a is the length of one side of the regular hexagon	a is the length of one side of the triangle

1. What is the area, in square yards, of the regular hexagon?

What is the area, in square yards, of one of the small equilateral triangles?

Show your work using words, numbers, and/or diagrams

2. The reinforced glass costs \$40.50 per square foot. Orange tinting costs an additional \$6.20 per square foot and purple tinting costs an additional \$7.55 per square foot. Create a cost analysis that shows the cost of creating the window, including:
- The cost for each equilateral triangle, including tinting
 - The cost for the regular hexagon, including tinting
 - The total cost for the entire window.

Be sure to show how you used your area calculations from question #1 in your cost analysis.

Show your work using words, numbers, and/or diagrams.

