Practical Problem

3.   The figure is a diagram made of 5 shapes stacked on top of one another. The image is the shape you'd see if you were looking at the end of the beam. Starting from the bottom the shapes are:

A rectangle with width of 22 inches and height of 7 inches has an area of 22 times 7 which equals 154 inches squared.

A trapezoid, small side up with height of 7 point 5 inches with top of 7 inches and base of 22 inches has an area of one half times 29 times 7 point which equals 108 point 75 inches squared

A rectangle with width of 7 inches and height of 19 inches has area equal to 7 times 19 which equals 133 inches squared

A trapezoid, small side down with height of 4 point 5 inches with top of 16 inches and bottom of 7 inches has area of one half times 23 times 4 point 5 which equal 51 point 75 inches squared

A rectangle with width of 16 inches and height of 7 inches has area of 16 times 7 which equals 112 inches squared.

154 plus 108 point 75 plus 133 plus 51 point 75 plus 112 equals 559 point 5 inches squared

Since the beam is 110 feet long that is 1320 inches.

The volume of the figure equals 559 point 5 times 1320 which equals a total volume of 738540 inches cubed