

# Treigonometry solves Christmas decoration dilemma

December 6 2012

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$$\text{Number of baubles} = \frac{\sqrt{17}}{20} \times (\text{tree height in cms})$$

$$\text{The length of tinsel (cms)} = \frac{13 \times \pi}{8} \times (\text{tree height in cms})$$

$$\text{The length of lights (cms)} = \pi \times (\text{tree height in cms})$$

$$\text{The height of the star/fairy (cms)} = \frac{\text{height of tree (in cms)}}{10}$$

Mathematics has provided an answer for those striving for the perfect Christmas tree, Britain's University of Sheffield says.

The university's Maths Society was set the challenge of decorating a tree so that greenery and glitz are in harmonious proportion, resolving the problem of a tree that is either too barren or gaudy.

Here's their formula:

- Number of baubles: Take the square root of 17, divide it by 20 and multiply it by the height of tree (in centimetres).

- Length of tinsel: 13 multiplied by [pi](#) (3.1415) divided by 8, then multiplied by tree height.
- Length of tree lights: Pi multiplied by tree height
- Height (in centimetres) of star or fairy on top of tree: Tree height divided by 10.

"For example, a 180cm (six-foot) [Christmas tree](#) would need 37 baubles, around 919 cms of tinsel (30 feet) and 565 cms (19 feet) of lights, and an 18cm (seven-inch) star or angel is required to achieve the perfect look," the University says.

For those seeking an easier way of figuring this out, its website ( [www.shef.ac.uk/news/nr/debenha ... ree-formula-1.227810](http://www.shef.ac.uk/news/nr/debenha...ree-formula-1.227810) ) has a simple-to-use calculator.

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