



## Problem Solver



**A piece of string is 40 centimeters long. It is cut into three pieces. The longest piece is 3 times as long as the middle-sized piece and the shortest piece is 23 centimeters shorter than the longest piece. Find the lengths of the three pieces.**

**Let the length of the mid-size piece be  $x$ .**

**Length of the long piece =  $3x$ .**

**Length of the short piece =  $3x-23$**

**Total Length = 40 =  $x+3x+3x-23$**

**$7x-23=40 \rightarrow 7x=63 \rightarrow x=9$**

**Long piece = 27, Short Piece = 4, Mid-size Piece=9**

**Check:  $27+4+9 = 40$ .**

**A cube has a volume of  $8 \text{ cm}^3$ . The cube is expanded such that the length of each side doubles. What is the volume of this new cube?**

**Original cube volume =  $8 \text{ cm}^3$**

**Original cube side length = 2cm**

**New cube side length = 4 cm**

**New cube volume =  $4 \times 4 \times 4 = 64 \text{ cm}^3$**