YOU & MATHS If the length of each side of a triangle is increased by 20%, then the area of the triangle is increased by:

A 40%. B 44%. C 48%. D 52%. E 60%.

(USA *University of South Carolina: High School Math Contest,* 2001)

If the length of each side of the triangle is increased by 20%, including the base b, then the measure of the height h of the triangle will increase by 20% as well. Let us call A_n the area of the new triangle and A_o the area of the original triangle. We can then write:

$$A_n = \frac{120\%\, b \cdot 120\%\, h}{2} = \frac{144\%\, b \cdot h}{2} = 144\%\, A_o.$$

The difference between the two areas is:

$$A_n - A_o = 144\%\, A_o - A_o = 44\%\, A_o.$$

The new area has increased by 44%. Our final answer is B.