Weekly Question (08.05.13)

The height of a triangle is $\frac{1}{2}$ of its base. When the length of the base is increased by 25% while the height is halved, what is the ratio of the area of the new triangle to the area of the original triangle?

Solution:

Assume height of triangle is 20 cm ; base = 40 cm

Area of original triangle → $\frac{1}{2} \times 40 \times 20 = 400\ cm^2$

25% = $\frac{1}{4}$

New base → $40 + \left(\frac{1}{4} \times 40\right) = 50$ cm

New height → 10 cm

Area of new triangle → $\frac{1}{2} \times 50 \times 10 = 250\ cm^2$

Ratio of area of new triangle to area of original triangle

→ 250 : 400 = 5 : 8

Ans: The ratio of the area of the new triangle to the area of the original triangle is 5 : 8.