# Answer to Question #68435

**Question:** A ball is left from the top of a building. A window is in the building the ball is cross the window in 0.5 second. The length of the window is 3 meter. If the speed of the ball at the top of the window is Vt and the bottom of the window is Vb( g=9.8) then which option is right =
1.Vt+Vb=12 meter per second
2.Vt-Vb=4.9 meter per second
3.VtVb=1 meter per second
4.Vb/Vt=1 meter per second

**Solution:**

If the ball crosses the window in 0.5 s then we can write

$$\frac{gt^2}{2} + V_t t = l$$

$$\frac{9.8 * 0.5^2}{2} + V_t * 0.5 = 3$$

$$V_t = 3.55 \frac{m}{s}$$

The velocity at the bottom of the window

$$V_b = V_t + gt = 3.55 + 9.8 * 0.5 = 8.45 \frac{m}{s}$$

So

$$V_b + V_t = 3.55 + 8.45 = 12 \frac{m}{s}$$

**The correct answer is 1.**