A wagon with a width of 2.4 m, moving at a speed of 15 m per second, was shot through by a bullet perpendicular to the movement of the wagon. The distance between the two bullet holes in the wagon's walls is 6 cm. What is the speed of the bullet ?

The speed of bullet is:

$$v_b = \frac{S}{t}$$

where S – is a wagon width.

During time t a wagon will move at distance d:

$$t = \frac{d}{v_w}$$

So:

$$v_b = \frac{S}{\frac{d}{v_w}} = \frac{Sv_w}{d}$$

$$v_b = \frac{2.4m * 15m/s}{0.06m} = 600m/s$$

Answer: $v_b = 600m/s$