

Kinematics

(11)

Ex. A boy throws up a ball with a velocity of 20 ms^{-1} . Find the time elapsed between the throwing + catching the ball.

DATA:-

$$\text{Initial velocity} = 0 \text{ ms}^{-1}$$

$$\text{Final velocity} = 20 \text{ ms}^{-1}$$

$$\text{Gravity} = g = 10 \text{ ms}^{-2}$$

$$\text{Height} = h = ?$$

$$\text{Time Taken} = ?$$

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SOLUTION:-

First, calculate the time when the ball reach the top:-

$$v_f = v_i + gt$$

$$0 = 20 + (10)t$$

$$0 = 20 - (10)t$$

$$(10)t = 20$$

$$t = \frac{20}{10}$$

$$t = 2$$

So, time between catching + throwing will be

$$\text{Total time} = t + t$$

$$= 2 + 2$$

$$= 4 \text{ secs}$$