

km/hr to m/s conversion:

$a \text{ km/hr} = (a \times 5/18) \text{ m/s}.$

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Formulas for finding Speed, Time and Distance

Time taken by a train of length l metres to pass a pole or standing man or a signal post is equal to the time taken by the train to cover l metres.

Time taken by a train of length l metres to pass a stationary object of length b metres is the time taken by the train to cover $(l + b)$ metres.

Suppose two trains or two objects bodies are moving in the same direction at u m/s and v m/s, where $u > v$, then their relative speed is $= (u - v) \text{ m/s}.$

Suppose two trains or two objects bodies are moving in opposite directions at u m/s and v m/s, then their relative speed is $= (u + v) \text{ m/s}.$

If two trains of length a metres and b metres are moving in opposite directions at u m/s and v m/s, then:

The time taken by the trains to cross each other $= ((a + b)/(u + v)) \text{ sec}.$

If two trains of length a metres and b metres are moving in the same direction at u m/s and v m/s, then:

The time taken by the faster train to cross the slower train $= ((a + b)/(u - v)) \text{ sec}.$

If two trains (or bodies) start at the same time from points A and B towards each other and after crossing they take a and b sec in reaching B and A respectively, then:

$(A's \text{ speed}) : (B's \text{ speed}) = (\sqrt{b} : \sqrt{a})$