

Examrace

▶ Examrace 463K

Time & Distance, Trains, Boats & Streams Tricks and Formulas

Time & Distance

Suppose a man covers a distance at 'x' kmph and an equal distance at 'y' kmph, and then average speed during his whole journey is $\left[\frac{2xy}{x + y} \right]$ kmph

Trains

- Lengths of trains are 'x' km and 'y' km, moving at 'u' kmph and 'v' kmph (**where, $u > v$**) in the same direction, then the time taken by the over-taker train to cross the slower train is $\left[\frac{x + y}{u - v} \right]$ hrs
- Time taken to cross each other is $\left[\frac{x + y}{u + v} \right]$ hrs
- If two trains start at the same time from two points A and B towards each other and after crossing they take a and b hours in reaching B and A respectively.
- $x \text{ kmph} = (x \times 5/18) \text{ m/sec.}$
- $y \text{ metres/sec} = (y \times 18/5) \text{ km/hr.}$

Boats & Streams

- If the speed of a boat in still water is **u km/hr** and the speed of the stream is **v km/hr**, then:
Speed downstream = $(u + v)$ km/hr. . and **Speed upstream = $(u - v)$ km/hr.**
- If the speed downstream is **a km/hr** and the speed upstream is **b km/hr**, then: **Speed in still water = $\frac{1}{2}(a + b)$ km/hr.** and **Rate of stream = $\frac{1}{2}(a - b)$ km/hr.**