Trains

BASICS :

Speed = Distance / Time

km/hr to m/s conversion: a km/hr = a x (5/18) m/s.

m/s to km/hr conversion: a m/s = a x (18/5) km/hr.

FACTS:

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

Time taken by a train of length x metres to pass a stationary object of length y metres is the time taken by the train to cover (x+ y) 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) 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) m/s.

Basic Physics:

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) 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) 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 speed) : (B's speed) = (**sqrt(b) : sqrt(a)**)