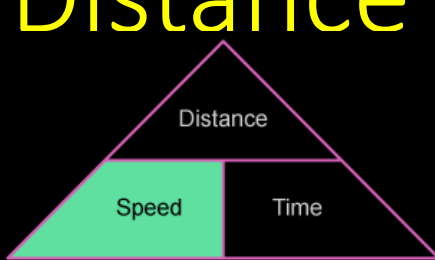
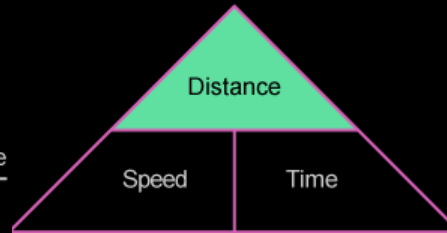


These Slides Accompany the YouTube Video Tutorial:
<https://www.youtube.com/watch?v=DSKW0QrqUtc>

Advanced Speed, Time, & Distance

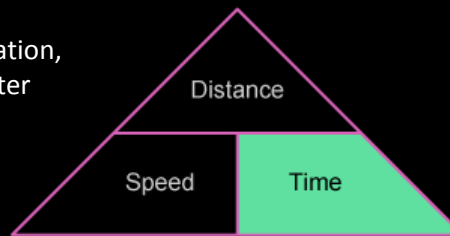


$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$



$$\text{Distance} = \text{Speed} \times \text{Time}$$

Mayank Bomb, Previously Sr. Architect, Intel Corporation,
Hillsboro, USA with 5 Patented Inventions in Computer
Architecture
ECE Graduate, University of Texas Austin, USA
B. Tech. EE, IIT Varanasi



$$\text{Time} = \frac{\text{Distance}}{\text{Speed}}$$

3:28 PM

1

A man takes 5 hr 45 min in walking to certain place and riding back. He would have gained 2 hrs by riding both ways. The time he would take to walk both ways is?

7 hr 45 min

3:28 PM

2

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I leave my home every day at 8:00 am. One day, I left my home at my normal time and travelled the first half of the distance at $\frac{2}{3}$ of original speed, what should be my speed for the second half so that I reach my office in time?

3:28 PM

Double speed

3

A train goes from station A to station B everyday. One day, it travelled $\frac{4}{5}$ of its original speed because of engine trouble at A and reached station B at 6:15 pm. If the trouble had occurred after the train had travelled 100 km from A, the train would have reached B at 6:00. Find its original speed?

3:28 PM

100 km/s

4

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A covered a distance of 96 km two hours faster than he had planned to. This he achieved by travelling 1 km more every hour than he intended to cover every 1 hour 15 minutes. What was the speed at which A traveled during the journey?

$$5s^2 - 44s - 192 = 0, s = -16, 12$$

3:28 PM

5

Bob picks his son every day from school. School timings are till 5 pm daily, but today it was till 4 pm. His son, walks towards the house. Bob, unaware of this fact, leaves his house as usual, meets his son on way, scolds him for leaving alone and brings him to house. Bob realizes that he had saved 40 minutes that day. What is the ratio of the speed of Bob to his son?

2:1

3:28 PM

6

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Ravi who lives in countryside, caught a train for home earlier than usual yesterday. His wife normally drives to station to meet him. But yesterday he set out on foot from the station to meet his wife on the way. He reached home 12 minutes earlier at 6'o clock. The car travels at 5 times Ravi's speed. At what time would he have reached home if his wife had met him at the station.

5:36

3:28 PM

7

Two trains start together from opposite stations. After they cross one of them takes 9 hours to reach the destination and other 25 hours. Find the ratio of their speeds?

5:3

3:28 PM

8

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A man started from home at 14:30 hours and drove to a village, arriving there when the village clock indicated 15:15 hours. After staying 25 minutes, he drove back by a different route of length $(5/4)$ times the first route at a rate twice as fast, reaching home at 16:00 hours. As compared to the clock at home the village clock is _____ fast/slow?

5 min fast

3:28 PM

9

A train approaches a tunnel AB. Inside the tunnel is a cat located at a point that is $3/8$ of the distance AB measured from the entrance A. When the train whistles the cat runs. If the cat moves to the entrance of the tunnel A, the train catches the cat exactly at the entrance. If the cat moves to the exit B, the train catches the cat exactly at the exit. The speed of the train is greater than the speed of the cat by what order?

4:1

3:28 PM

10

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Next: Relative Speed

A train X departs from station A at 11.00 a.m. for station B, which is 180 km away. Another train Y departs from station B at 11.00 a.m. to station A. Train X travels at an average speed of 70 km/hr and does not stop anywhere until it arrives at station B. Train Y travels at an average speed of 50 km/hr, but has to stop for 15 minutes at station C, which is 60 km away from station B en route to station A. Ignoring the lengths of the trains, what is the distance, to the nearest km, from station A to the point where the trains cross each other

Examrace