## [Infosys Sample Distance Calculation Questions](http://www.careersvalley.com/infosys-sample-distance-calculation-questions" \o "Infosys Sample Distance Calculation Questions)

**Question 1** A train starts from station P towards Q with certain speed. Due to a problem, after crossing 50km, the train slows down to 2/3 rd of its actual speed and it reaches Q 50 minutes later than the planned time. Suppose the technical problem had happened after crossing 60 km and the train would had reached 40 minutes late. What is the actual(original) speed of the train and what is the distance between P and Q ?

a)30km/hr, 100km b)20km/hr,80km c)40km/hr,150km d)50km/hr,150km

**Answer :** a)30km/hr, 100km

Solution:

Let the distance between P and Q be X and the speed initially be V.

Note that the train travels 50km with speed V and the remaining distance(X-50)km with speed 2/3 of V.  
According to the above condition, with the formula " distance/speed = time", we can have

Time Taken For First 50 Km + Time Taken For Remaining (X-50) Km = Planned Time + Extra Time Due To Problem

[50/V]+[(X-50)/(2V/3)] = [X/V]+5/6 (here 50 minutes = 5/6 hours)  
[100+3X-150-2X]/2V = 5/6  
3X-5V = 150 ...eqn1

Suppose the technical problem had happened after crossing 60 km and the train would had reached 40 minutes late.

Using the same logic we used to arrive at eqn1, we get,

[60/V]+[(X-60)/(2V/3)] = [X/V]+2/3 (here 2/3 is for 40 minutes in hour.)  
[120+3X-180-2X]/2V = 2/3  
3X-4V = 180 ....eqn2

Solving eqn1 & eqn2, we get  
X=100 & V=30

Hence the distance between P and Q is 100km and the actual speed of the train is 30km/hour.

**Question 2** A train starts from A towards B with some velocity. Due to an engine problem, after travelling 3/8 of its journey, it slows to 3/5 of its actual velocity. The train reaches B 1 hour later than the actual planned time. If the engine had failed after travelling 80km and if it would had slowed down to 4/5th of its initial velocity for another 80km and covered remaining distance with 1/2 of its initial velocity, the train would had reached the destination one and half hours late. What is the distance between A and B in meters?

a)10000 b)48000 c)24000 d)52000

**Answer :** b)48000

Solution:

Let the distance between A and B be X and the speed initially be V.

The train travels 3X/8km with speed V and the remaining distance(X - 3X/8)km with speed 3/5 of V. Ultimately the train was late by 1 hour.  
According to the above condition with the formula " distance/speed = time", we can have  
[(3X/8)/V]+[(X-(3X/8))/(3V/5)] = [X/V]+1  
[3X/8V] + 5(8X-3X)/24V = [X/V]+1  
9X+25X-24X / 24V = 1  
10X-24V = 0 ..........eqn1

According to the question, if the train travelled 80km with speed V, another 80km with 4/5 th of V and the remaining distance(X-160)km with speed 1/2 of V then  
[80/V]+[80/(4V/5)]+[(X-160)/(1V/2)] = [X/V]+3/2  
80/V + 100/V + (2X-360)/V = X/V + 3/2  
X-180 / V = 3/2  
2X-3V = 360 .........eqn2  
solving eqn1 and eqn2  
we have, X=480 and V=200

Thus the distance between A and B is 480km and the speed of the train is 200km/hour.  
Hence 480km = 480000meters is the answer.

**Question 3** A man rides a bike with speed V for a distance X km. After completing 1/2 of his journey he slows down to 1/2 of his initial speed and completes his ride half an hour late than planned time. What will be the ratio of the distance to the speed?  
a)1:2 b)2:1 c)1:1 d)2:3

**Answer :** c)1:1

Solution:

Let the distance be X and the speed initially be V.

Using same logic as we used for previous two questions, we get,

X/2V + [X-(X/2)]/(V/2) = X/V + 1/2  
X/2V + [4X-2X]/2V = X/V + 1/2  
X/2V = 1/2  
X = V or X/V = 1  
Thus 1:1 is the required ratio.