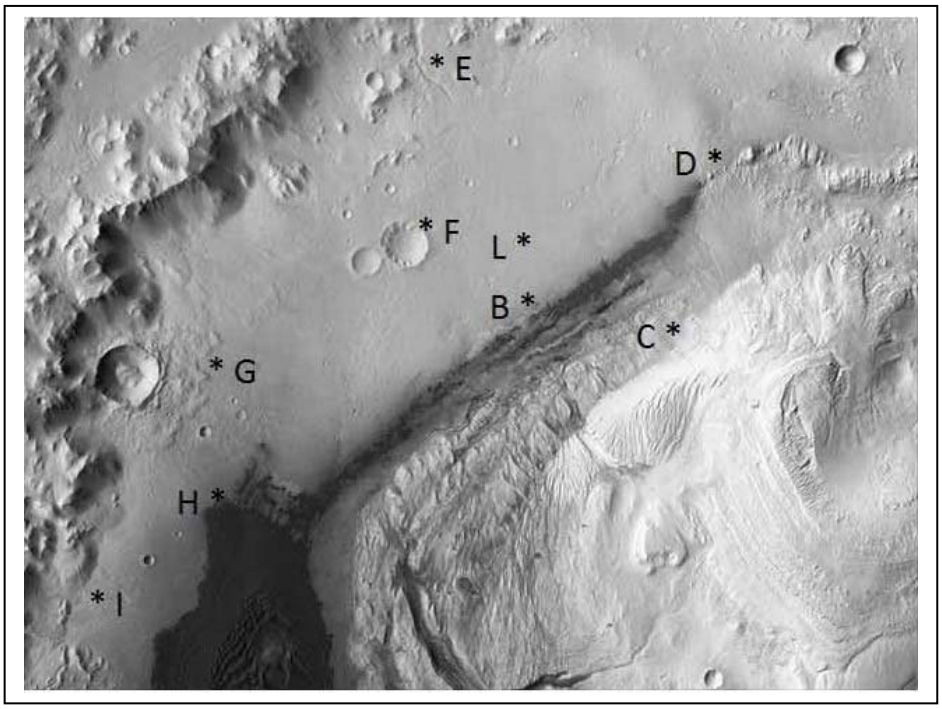

The table below gives the coordinates for the locations visited by the Curiosity Rover shown in the figure above. The X and Y coordinate units are in kilometers. Although Curiosity is free to travel between most points in the map, Point C is at a much higher elevation than the other points, and a steep cliff wall exists between Point B and C and runs diagonally to the lower left.

Label	Name	(X,Y)	Label	Name	(X,Y)
L	Landing Area	(45,40)	F	Crater Wall	(38,43)
B	Layered Wall	(50,35)	G	Mudslide	(17,30)
C	Alluvial Fan	(60,32)	H	Dark Sands	(17,19)
D	Summit Access	(65,50)	I	Mystery Valley	(5,10)
E	River Bed	(37,58)			

Problem 1 – Curiosity can travel a top speed of 300 meters/hr. When it landed, it was instructed to move as quickly as possible to Point B in case the mission malfunctioned. What is the distance between Point L and Point B, and how long did it take Curiosity to get there?

Problem 2 – To the nearest kilometer, what is the distance directly from Point D to Point I as, and how long would it take Curiosity to make this trip without stopping to do any scientific research?

Problem 3 – One possible path Curiosity might take connects all of the points in the sequence L-B-D-C-D-E-F-B-G-H-I. To the nearest kilometer, what is the total distance traveled, and to the nearest tenth, how many days would this journey take?

Problem 4 – Can you think of a different trip, and include a 3-day stay at each point along the way?

Problem 1 – Curiosity can travel a top speed of 300 meters/hr. When it landed, it was instructed to move as quickly as possible to Point B in case the mission malfunctioned. What is the distance between Point L and Point B, and how long did it take Curiosity to get there?

Answer: L(45,40) and B(50,35). Using the Pythagorean distance formula, $D = ((50-45)^2 + (35-40)^2)^{1/2}$ = **7 kilometers**. The time taken is just T = 7000 meters/300 m/h = **23 hours.**

Problem 2 – To the nearest kilometer, what is the distance directly from Point D to Point I as, and how long would it take Curiosity to make this trip without stopping to do any scientific research?

Answer: Point D(65,50) and Point I(5,10) than d = ((5-65)2 + (10-50)2)1/2 = **72 kilometers**. This takes T = 72000 meters/300 m/h = 240 hours or **10 days**.

Problem 3 – One possible path Curiosity might take connects all of the points in the sequence L-B-D-C-D-E-F-B-G-H-I. To the nearest kilometer, what is the total distance traveled, and to the nearest tenth, how many days would this journey take?

Answer: Using the distance formula between consecutive point pairs we get:
D(LB) = 7 km
D(BD) = 21 km
D(DC) = 19 km
D(CD) = 19 km
D(DE)= 29 km
D(EF) = 15 km
D(FB) = 14 km
D(BG)= 33 km
D(GH)=11 km
D(HI) = 15 km Total distance = 183 km, time = 183,000/300 = 610 hrs = **25.4 days**.

Problem 4 – Can you think of a different trip, and include a 3-day stay at each point along the way?

Answer: Students may take the points in any interesting order. One strategy is to do the most interesting points first to make sure that the mission science goals are achieved. Be cafreful of the big cliff between Points B and C!