

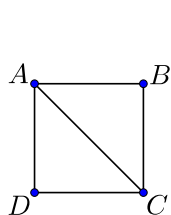


Problem of the Week

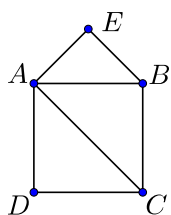
Problem B

Look At Rick Shaw Go!

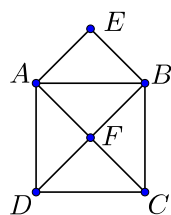
Rick Shaw transports tourists through a park on his human-powered cart. He takes passengers around on several different routes (The Basic, The Classic, The Plus and The Ultimate), depending on how much they are willing to pay. On each route, he travels along each path (line segment) exactly once. He may pass through a node (vertex) more than once to complete a route. He does not have to start and end at the same place.



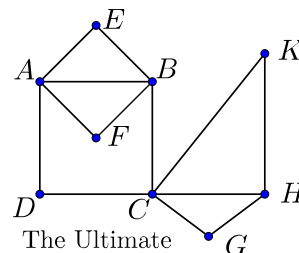
The Basic



The Classic



The Plus



The Ultimate

Above is a picture of Rick and his four possible routes.

- a) **Determine a way to travel each of the routes. Record the results in the following chart.** For The Basic, a successful route could start at A and end at C as follows:

$$A \rightarrow B \rightarrow C \rightarrow A \rightarrow D \rightarrow C$$

(This is one possible route; there are others.)

- b) **At each node in any route there are a number of intersecting paths. For each route, record the total number of intersecting paths, the number of intersecting paths at the start point and the number of intersecting paths at the end point.** For The Basic, there are 3 intersecting paths at node A, 2 intersecting paths at node B, 3 intersecting paths at node C, and 2 intersecting paths at node D. There is a total of $3 + 2 + 3 + 2 = 10$ intersecting paths, 3 intersecting paths at the starting point A and 3 intersecting paths at the endpoint C.

Route	No. of Intersecting Paths		
	Total	Start	End
Basic: $A \rightarrow B \rightarrow C \rightarrow A \rightarrow D \rightarrow C$	10	3	3
Classic:			
Plus:			
Ultimate:			

- c) What trends do you notice about the number of intersecting paths at the start and end points of each successful route?
- d) What trend do you see in the total number of intersecting paths?
- e) Try to draw two routes, one that has a successful path and one that does not. Switch your new routes with a partner. Predict which of your partner's routes will work and which will not. Then confirm your predictions.

STRANDS GEOMETRY AND SPATIAL SENSE, PATTERNING AND ALGEBRA

