

Arthur's solution

Question 1

a. RCRABR (16 mins)

b. The two longest path is linked to C, avoid using them will lower the total traveling time significantly. Therefore, the only way to get to c is using the path with 2 mins. The remaining question is the most efficient way to travel between R, B, and A. As finally the rider must went back to R, the path is limited to either travel as a circle, like RABR/RBAR, or went back to R before going to another location, which is RBRAR/RARBR. The previous option is faster.

Question 2

a. RABCR (14 mins)

b. path ARC and AC have the same length, but ARC also connected to R, so ARC is a better option than AC. Within the remaining paths, ARC is also the shortest path for connecting location A, R, and C. Therefore ARC will be choosen as part of the main path. The remain problem is how B connected to path ARC. There 4 options: 1. BC+BR; 2. BR+BA; 3.BC+BA; 4. BR*2. If 1 and 2 are chosen, there will be extra time cost as there is a location having only one path linked to R and the rider must go from R and went back to R for traveling that location. Time cost will be doubled. For 3 and 4, there is no extra time cost, and 3 is the shorter path, hence RABCR will be the final answer.

Question 3