

Heuristic*Problem*Solving

QUIZ #5

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MY NAME IS:

Q1. [5] On a triangle, each corner has an ant. Each ant starts to move on an edge towards another corner, chosen at random. What is the chance that none of the ants collide (but they all visit all three corners)?

Q2. [5] The triangle can be thought of as a cyclic-graph with three-vertices: C_3 . Define a generalization, C_n ($n \geq 3$), as a graph with n vertices: $V = \{v_i | 0 \leq i < n\}$ and edges $E = \{(v_i, v_{i+1 \pmod n}) | 0 \leq i < n\}$. Each vertex has an ant; each ant starts to move on an edge towards another vertex, chosen at random. What is the chance that none of the ants will collide (but visit all n vertices)?

Q3. [10] The triangle can be thought of as a complete-graph with three-vertices: K_3 . Define a generalization, K_n ($n \geq 3$), as a graph with n vertices: $V = \{v_i | 0 \leq i < n\}$ and edges $E = \{(v_i, v_j) | 0 \leq i \neq j < n\}$. Each vertex has an ant; each ant starts to move on an edge towards another vertex, chosen at random. What is the chance that none of the ants will collide (but visit all n vertices)?