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Hypercube subgraphs with minimal detours. (In English)

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What happens to distances in a graph when moving to a subgraph? In an n-dimensional hypercube some distance always increases by at least 2. The minimum number of edges for the subgraph, necessary to keep such detours within 2 for all vertex-pairs, is shown to be at most $\min\{\frac{n+5}{4n}; \frac{3}{\sqrt{2n}}\}$ of the number of n-hypercube edges, and at least $(4 - \frac{14n-38}{n^2+n-10})2^{n-1}$.

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Classification:
05C12 Distance in graphs
05C35 Extremal problems (graph theory)
68R10 Graph theory in connection with computer science

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subgraph; hypercube; distance; detours