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Metric Number In Dimension

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Abstract

In this outlet, I've devised the concept of relation amid two points where these points are coming up to make situation which in that the set of objects are greed to represent the story of how to be in whatever situations when these two points have the styles of being everywhere in the highlights of the concept which are coming from the merits of these points where are eligible to make capable situation to overcome every situation when they're participant in the hugely diverse situations which mean too styles of graphs with have the name or the general results for the general situation as possible as are.

Keywords: Metric, Dimension, named graphs, unnamed graphs

AMS Subject Classification: 05C17, 05C22, 05E45, 05E14

1 Preliminary On The Concept

I'm going to refer to some books which are cited to the necessary and sufficient material which are covering the introduction and the preliminary of this outlet so look [Ref. [1], Ref. [2], Ref. [3], Ref. [5]] where Ref. [1] is about the textbook, Ref. [2] is common, Ref. [3] has good ideas and Ref. [5] is kind of disciplinary approaches in the good ways. Further references could be referred and could be addressed in [4, 6–15].

2 New Ideas As Definitions

Definition 2.1. Let $G : (E, B)$ be the graph.

- (Metric) The METRIC is the dynamic space when the metric has been increased, the number has no seen changes.
- (Number) The NUMBER is the type of parameter which in that, the number of objects in resolving sets, has the peers in the dimension.
- (In) The IN is the kind of inside number as the optimal.
- (Dimension) The DIMENSION is the space which in that, there are some classes of graphs.

Definition 2.2. Let $G : (E, B)$ be the graph. Then METRIC NUMBER IN DIMENSION is the graph which its reminded number in that notion, is two.

3 New Approaches As Results

Theorem 3.1. (Complete Bipartite Graph)

The complete bipartite graph is the metric number in dimension.

Proof. Every vertex from any part couldn't resolve the vertex in its peer in the opponent part. So the given set from one vertex in one part and one vertex in another part, make the number two as reminder so the graph is metric number in dimension. To capture it precise, there's two given vertices so there's four cases,

- two vertices belong to same part. So the vertex in the set, which is corresponded to this part has the distance two and the vertex in the next to part, has the distance one. So in this case, two vertices aren't resolvable.
- one vertex in one part and one vertex in another part. These two given vertices, could be solvable by any vertex which is given. Because there's the distance one and there's the distance two so in the case which the part for two vertices, is the same, the distance is two and in the case, two vertices have the different parts, the distance is one.
- If two given vertices belong to same parts, then adding all vertices to the resolved set in the way that, there's one vertex in any part out of the resolved set so there's two vertices for resolving which are resolvable because they aren't in same part.
- Two given vertices have been left aside like there are isolated so these two vertices is the complement of the resolving set.

□

Theorem 3.2. (Star Graph)

The star graph is the metric number in dimension.

Proof. The center of this graph is unique and other vertices have the same positions so two vertices which one of them is center, are the only vertices which could be resolved. Center and one given vertex which is different from center, are two only objects for the process of resolving so the graph is metric number in dimension. In other words, there are only two vertices for being resolved and more than two vertices couldn't be resolved. To capture the details, there are four cases.

- If two vertices are non-center, then the distance from the center vertex is one and the distance from non-center vertices are two. So the styles of these two vertices are the same and there aren't any vertices to resolve them.
- If more than two vertices are on demand to be resolved, then at least, two vertices are non-center so the discussion goes back to the previous case.
- One center vertex and one non-center vertex have been chosen to be resolved. The center vertex is chosen so the latter are non-center vertices. Any given non-center vertex has the distance one from center vertex and has the distance two from non-center vertex so they're resolved.
- Two vertices are relatively isolated in the matter of resolved set so this set is the complement for resolved set.

□

Theorem 3.3. (Wheel Graph)

The wheel graph isn't the metric number in dimension.

Proof. The wheel graph is the graph in that, the distance amid all vertices or precisely, the distance amid any two given set is one. So there's no vertices out of resolved set which means that the counterpart and complement of resolved set is empty set. \square

Theorem 3.4. (*Path Graph, Cycle Graph and Ladder Graph*)

The path graph, cycle graph and ladder graph isn't the metric number in dimension.

Proof. The resolved set for the path graph and the ladder graph, is singleton. The resolved set for cycle graph, is two given vertices. So these graphs are metric number in dimension if and only if they've three vertices for the case path graph and ladder graph and four vertices for the case cycle graph. \square

4 Open ways Of Results

Finding the ways in that, fundamental parameters of graphs are related to this concept.

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