Introduction to Graph Theory

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Ch. 3 Solutions

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1 Prove the following statements:

a If 3 edges were added to the graph in Figure 63a, then at least 2 of the new edges would be adjacent.

b Every graph with $v = 5$ and $e = 3$ has at least two adjacent edges.

c If v is an odd number, then every graph with v vertices and $\frac{1}{2}(v+1)$ edges has at least two adjacent edges

Solution: $\emptyset, \{1\}, \{2\}, \{3\}, \{1,2\}, \{2,3\}, \{1,3\}, \{1,2,3\}$.