Answer on Question #38340 – Math - Graph Theory

Let G be a simple graph with 20 vertices and 100 edges. The size of the minimum vertex cover of G is 8. Then size of the maximum independent set of G is
a) more than 12
b) less than 8
c) 8
d) 12

Solution:

A covering with minimum number of vertices is called minimum vertex covering.

Number of vertices in it is minimum vertex number, let us say $'x'$.

Independent set with max number of vertices is max vertex independent set.

Number of vertices in max vertex independent set is maximum vertex number, let us say $'y'$.

So for any Graph $G: x + y = |v(G)|$.

Therfore, $8 + y = 20$.

$y = 12$.

Answer: $d)12$