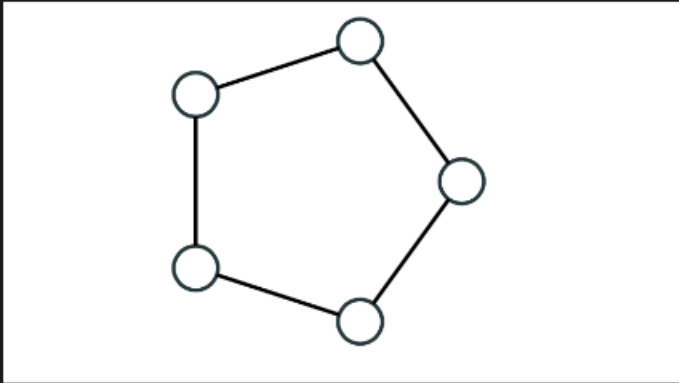


What is the clique number of C_5 ?

- ☒ 2
- ☐ 1
- ☐ 5
- ☐ 4

✓ **Correct**
Correct, the largest cliques in C_5 has size 2.



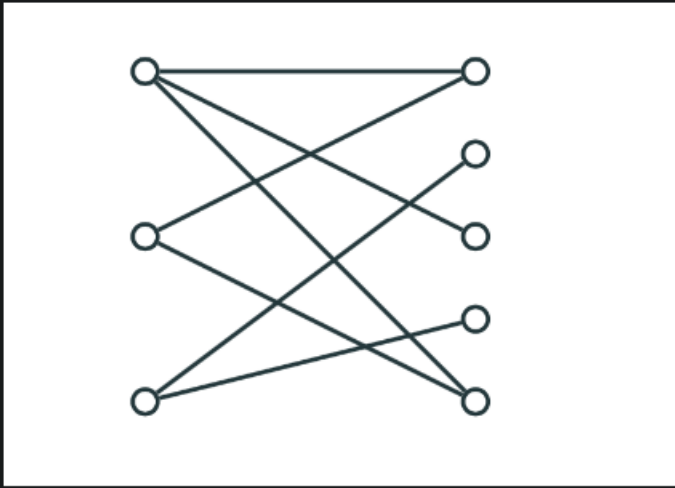
What is the independence number of C_5 ?

- ☐ 4
- ☐ 1
- ☒ 2
- ☐ 5

✓ **Correct**
Correct, the largest independent set in C_5 has size 2.

3.

1 / 1 point



What is the clique number of a bipartite graph with at least one edge?

- ☐ n
- ☐ $n/2$
- ☐ 1
- ☒ 2

✓ **Correct**

Correct, a bipartite graph doesn't contain cycles of length 3, thus, it doesn't contain cliques of size 3 and larger.

4. Mantel's theorem says that a graph on n vertices without triangles has at most $\lfloor \frac{n^2}{4} \rfloor$ edges.

1 / 1 point

Which of these graphs has $\lfloor \frac{n^2}{4} \rfloor$ edges, and doesn't contain triangles for all values of n ?

- ☒ $K_{\lfloor n/2 \rfloor, \lceil n/2 \rceil}$
- ☐ A graph with n vertices and 0 edges
- ☐ K_n
- ☐ C_n

✓ **Correct**

Correct, this graph is bipartite, so it doesn't contain cycles of length 3 (or triangles). Also, it has $\lfloor n/2 \rfloor \cdot \lceil n/2 \rceil = \lfloor \frac{n^2}{4} \rfloor$ edges.