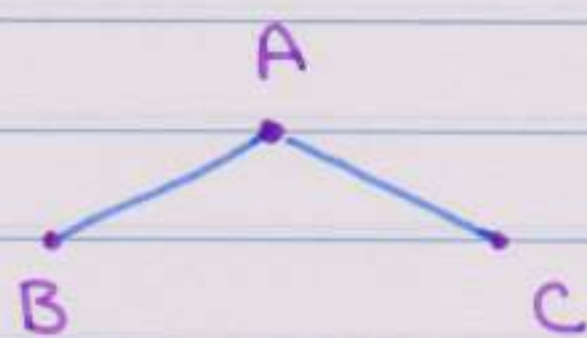# Graph Theory

1. Definitions:

a) Degree: The number of edges that terminate at a vertex.

E.g.
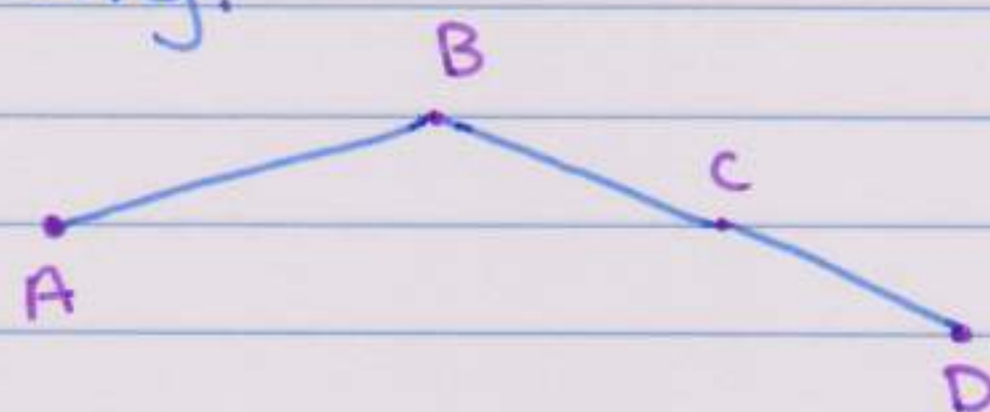
A

B   C

$Deg(A) = 2$
$Deg(B) = 1$
$Deg(C) = 1$

b) Path: A collection of consecutive and distinct edges.

E.g.

B

A   C

D

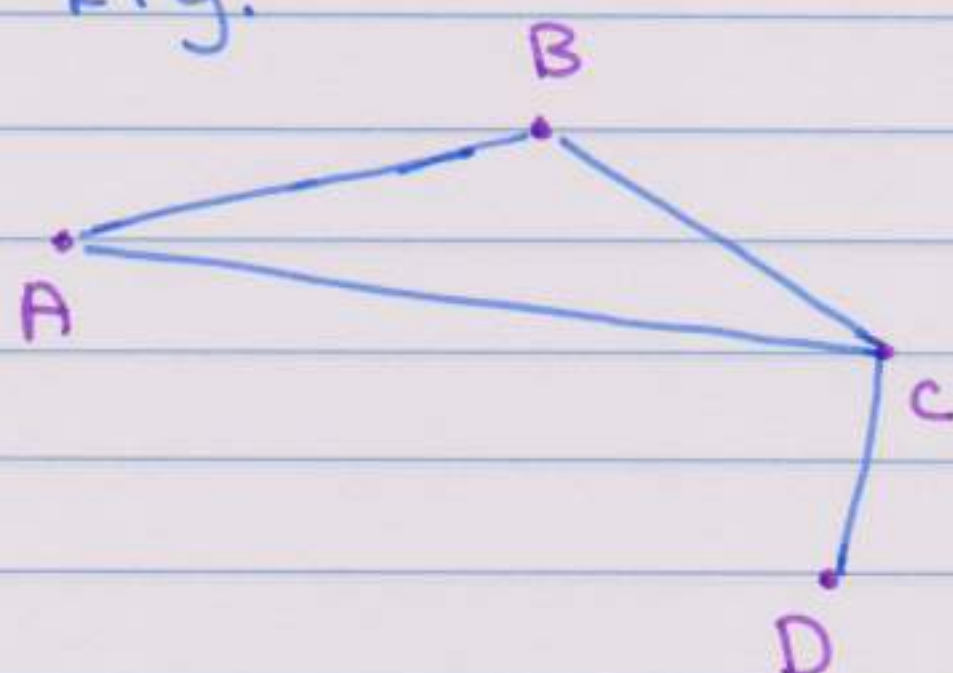AB, ABC, ABCD, BCD, CD, BC are all paths.

ACD is NOT a path.

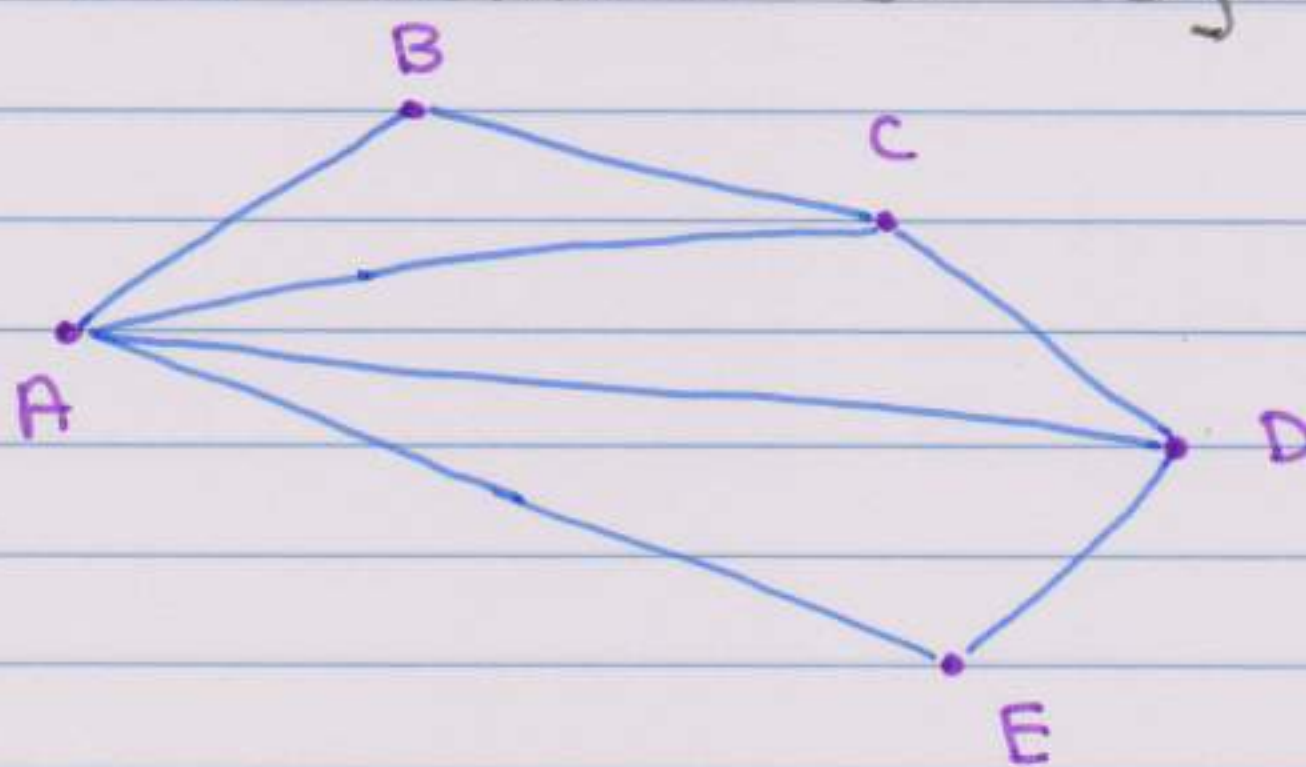c) Cycle: A path s.t. the first vertex is also the last vertex.

E.g.

ABCA is a cycle.
Note: ABA is not a cycle.

d) Even Cycle: A cycle with an even number of edges.

e) Odd Cycle: A cycle with an odd number of edges.

ABCA is an odd cycle.
ABCDA is an even cycle.
ABCDEA is an odd cycle.