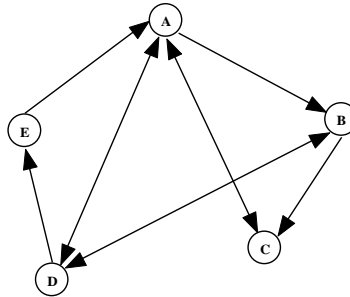


考号/Exam Code: _____ 姓名/Name: _____ 学校/School: _____

1. Graph Theory

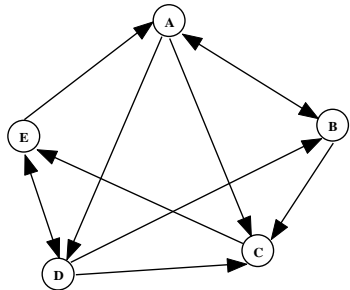
How many pairs of vertices have no path of length 3 between them?



1.

2. Graph Theory

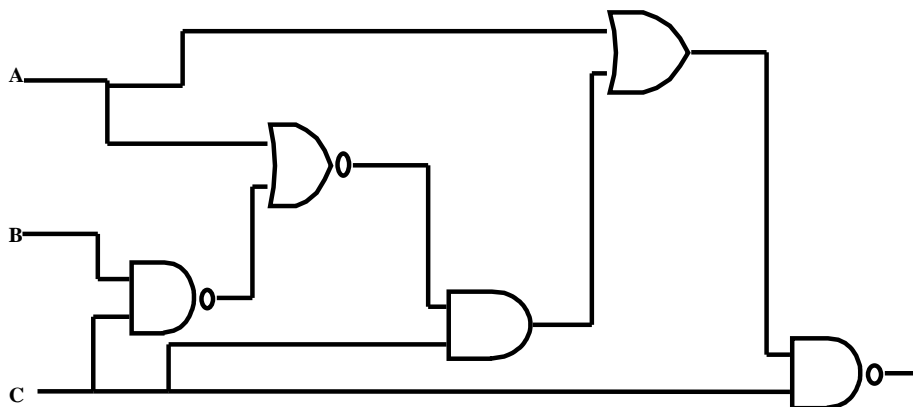
How many more cycles exist from vertex A than vertex C?



2.

3. Digital Electronics

Translate the following digital circuit to its equivalent Boolean expression. Do not simplify it.

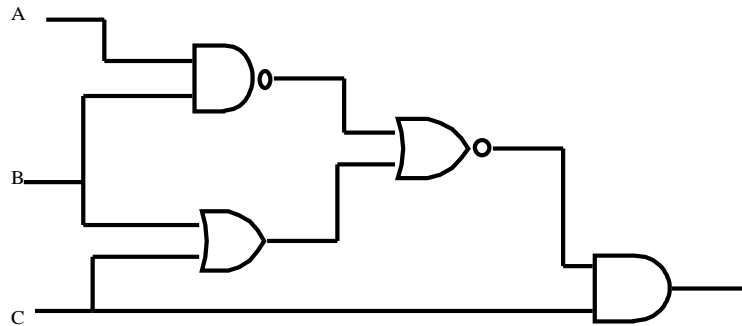


3.

SENIOR DIVISION

4. Digital Electronics

How many ordered triple(s) make the following circuit FALSE?



4.

5. Assembly Language

What is the output when this program is executed?

```

A    DC    0
B    DC    100
YELLOW LOAD  B
      DIV    = 10
      STORE  C
      MULT   = 10
      STORE  F
      LOAD   B
      SUB    F
      STORE  D
      LOAD   B
      DIV    = 100
      STORE  E
      SUB    D
      STORE  G
      BE     RED
BLUE  LOAD   B
      SUB    = 999
      STORE  H
      BL     GREEN
      PRINT  A
      END
  
```

```

      RED LOAD  A
      ADD    = 1
      STORE  A
      BU     BLUE
GREEN  LOAD   B
      ADD    = 1
      STORE  B
      BU     YELLOW
  
```

5.