

Workshop 9: Graphs

1. Pick any 5 of your friends on Facebook.

- a. Draw a graph where each person is a vertex and there is an edge if they are friends on Facebook.
- b. Is it a 'complete graph'?

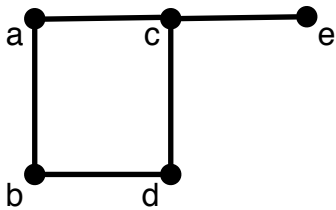
2. Draw a precedence graph for the following program.

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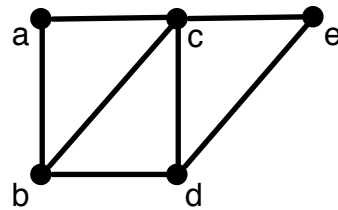
S1 int x = 0;
S2 x = x + 1;
S3 int y = 2;
S4 int z = y;
S5 x = x + 2;
S6 y = x + z;
S7 z = 4;
    
```

3. Which of the following graphs have an Euler circuit? Or, if not, an Euler path? Write down the circuit or path.

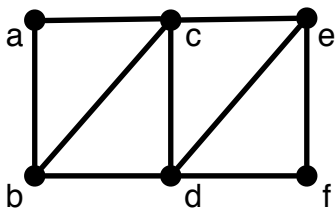
a.



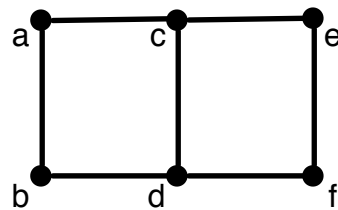
d.



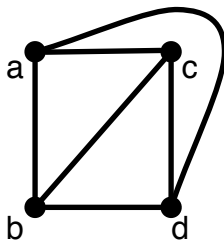
b.



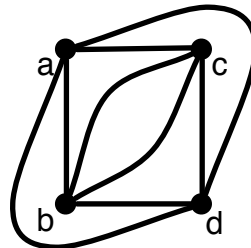
e.



c.

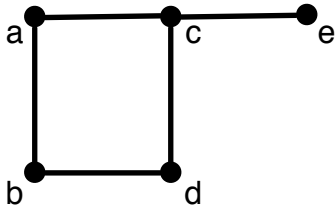


f.

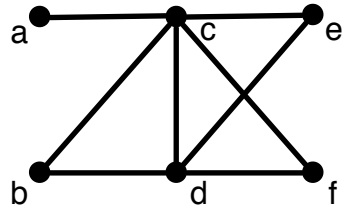


4. Which of the following graphs have a Hamilton circuit? Or, if not, a Hamilton path? Write down the circuit or path.

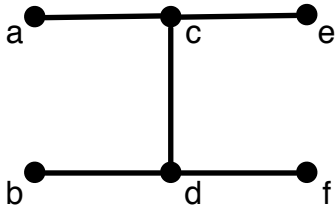
a.



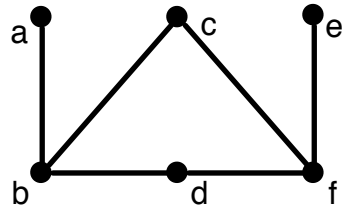
d.



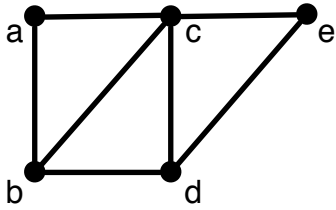
b.



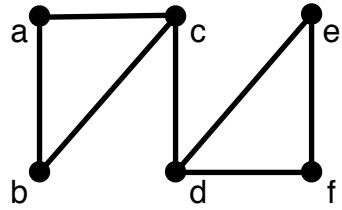
e.



c.

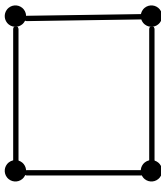


f.

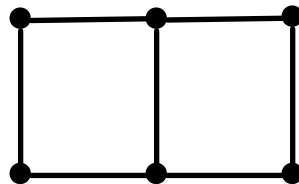


5. How many colours are needed to colour the following maps such that no two adjacent regions have the same colour.?

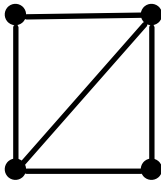
a.



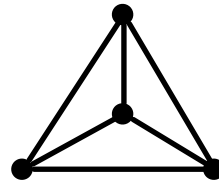
c.



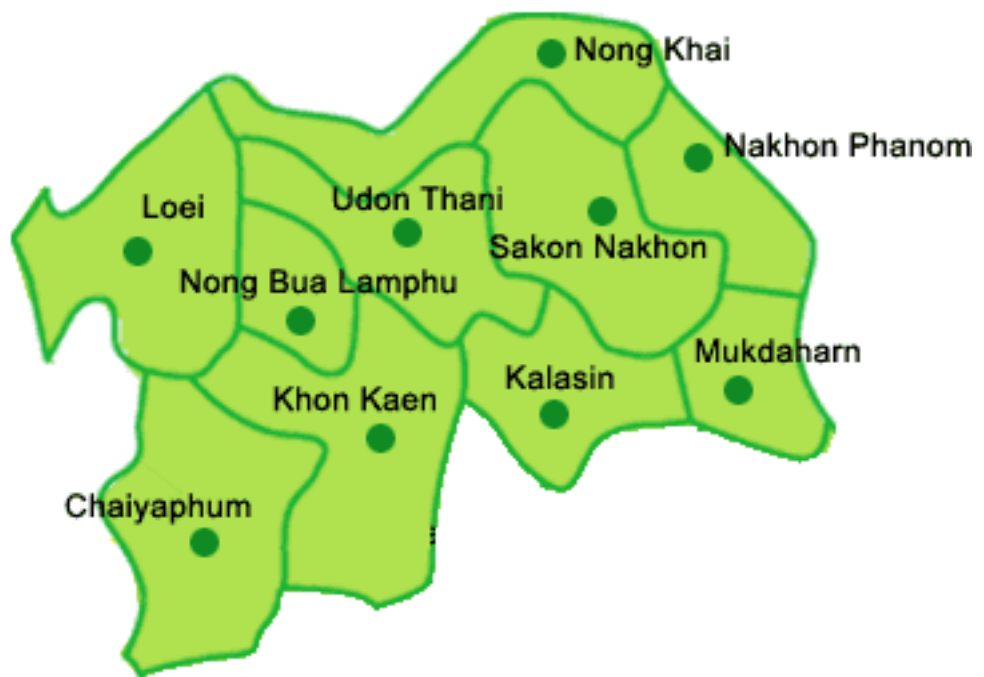
b.



d.



6. The map below is of the northern part of Isahn.



- a. Draw a graph of the adjacent provinces.
- b. Colour the graph. How many colours do you need?