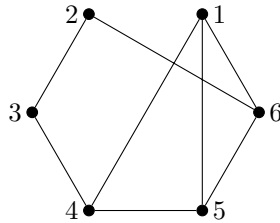# Practice Quiz - Math 455

1. (10 points) Let G be

(a) (1 point) What is the order of G?

(b) (1 point) What is $N[6]$?

(c) (1 point) What is $N(\{1, 2\})$

(d) (1 point) What is $\Delta(G)$?

(e) (1 point) Find a trail that is not a path.

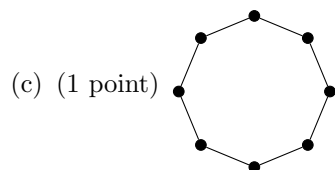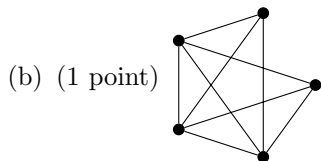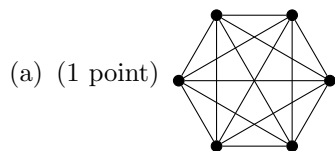(f) (1 point) What is the length of that trail?

(g) (1 point) Find a cycle.

(h) (1 point) What is the length of that cycle?

(i) (1 point) Draw $G - \{6\}$.

(j) (1 point) Draw $G - e$ where e is the edge $\{5, 6\}$.

2. (3 points) Find a graph G' such that the graph G from the first question is a subgraph of G', such that $\{1,2\} \in E(G')$ and $\{1,3\} \in E(G')$, and such that G' is regular.

3. (3 points) Find the connectivity of the following graphs.

(a) (1 point)
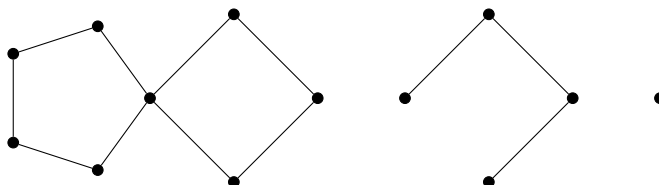
(b) (1 point)

(c) (1 point)

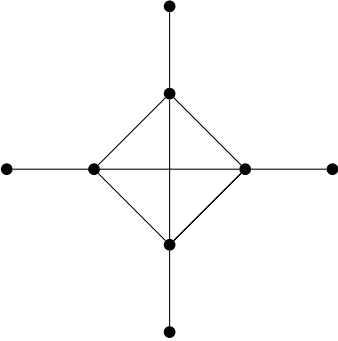4. (2 points) Let G be the graph below. Circle all statements that are true.
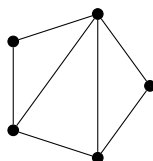
- G is 1-connected
- G is 2-connected
- G is 3-connected
- G is 4-connected

5. (1 point) How many connected components does the following graph contain?

6. (2 points) Find all bridges in

7. (2 points) Find all cut vertices in