Quiz 10

See second page.

1. Give the definition of a *graph*.   (5 pts.)

A graph is a pair of finite sets
$$G = (V, E)$$
such that $E \subseteq V \times V - \Delta$ where Δ is the diagonal $\Delta = \{(x,x) \mid x \in V\}$

2. Give an example of a graph on four vertices which is connected, has no closed paths, no isolated points, and a vertex of degree one. It is okay to say "The graph whose model is ...".
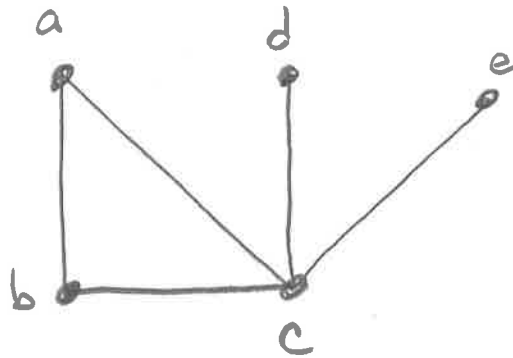
(6 pts.)

The graph whose model is

Also, the graph whose model is

also works.

3. Write YES if the graph below has the specified property and NO otherwise: (3 pts. each)

$$\mathcal{G} = (\{a, b, c, d, e\}, \{\breve{ab}, \breve{ac}, \bar{bc}, \bar{cd}, \check{ce}\}).$$

(a) has a closed path,   YES,   abca

(b) has a vertex with degree one and a vertex with degree three,

NO. The degree sequence is
4, 2, 2, 1, 1.

(c) is bipartite.

No. It has an odd cycle.