Wk 2 Quiz

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1. Which of the following is not a mandatory characteristic of a relation?
   a. **Rows in a table may not be ordered.** [incorrect]

2. A foreign key is indicated in SQL in part with the use of the following keywords in a
   CREATE statement:
   d. **REFERENCES:** Example from textbook:
      CREATE TABLE Offering
      ( ... CONSTRAINT FKFacNo FOREIGN KEY (FacNo) REFERENCES Faculty ... )

3. Which of the following constraints are enforced by a relational data model?
   a. A value stored in a column within a row is atomic
   b. Values in a primary key column are unique.
   c. Values in a foreign key column are subsets of values in a referenced column.
   d. **All of the above** are necessary constraints to ensure correct database
      functionality.
4.  a. **False.** The *entity* integrity rule ensures that people, things and events are uniquely identified in a database.
b. **False.** In a case where a table has just 1 column, the primary key is a superkey.
c. **True.** A superkey could be a candidate key, which in turn could be the designated primary key. (as in b.)
d. **True.** Algebra of numbers analogy: $x + y = z \rightarrow R \text{ (inner join)} S = T$, where $R$, $S$ and $T$ are tables.
e. **False.** The values must be unique not only at present but we also must guarantee will be unique for all future cases.
5. **B.** Zero if no matches. M*N in the case all rows in both tables match to one value - then simply the cross product.

Tricky Problem:

6. **D.** It is tempting to say the lower bound is M+N, because that occurs if there are no matches. However, in cases that the same entry is in both tables, the number can drop below M+N to as low as M.

Example: An employee database has tables called Current and All, where All includes employees who have left the company. In this case Current ⊂ All, so if Current has M rows and All has N rows, there would be N rows in the full outer join.
7. a - **Not a table**. No primary key.
   b - **Is a table**. Each row is unique, there’s a primary key, and cell values are atomic.
   c - **Not a table**. Duplicate rows.
   d - **Not a table**. Attributes nonatomic.
   e - **Not a table**. Cells contain complex information.
8. The entity integrity rule is necessary to ensure that the necessary conditions for a proper relational database are maintained, including correctness and accuracy.