Dictionaries

Introduction
Dictionaries are indexed by keys, which can be any non-mutable type; strings and numbers can always be keys. Tuples can be used as keys if they contain only strings, numbers, or tuples. You can’t use lists as keys, since lists can be modified in place using their append() method. It is best to think of a dictionary as an unordered set of key:value pairs, with the requirement that the keys are unique.

Part 1: The Quiz
Complete the trivia game with your group. Use the questions from the previous dictionary to find the appropriate key. The value of the key contains the next question. The first group to get the correct end value wins.

start = ("How much would 100 pounds on Earth weigh on the moon?")
dict1 = {114: “Which planet is the coldest?”, 16:“In Roman mythology, who of the following was the ruler of the gods?”, 73: “Which planet is the hottest?”, 30: “Which of the following is a Jovian planet?”, 5: “Which planet has the most moons?”}
dict2 = { “Jupiter”: “What was the first cloned mammal?”, “Saturn”: “What was the first animal domesticated by man?”, “Uranus”: “What is the outcome of a male donkey and a female horse?”, “Neptune”: “What animal has rectangular pupils?”, “Pluto”: “What is the only domestic animal not mentioned in the Bible?”}
dict3 = {“Cat”: “Which is a Halogen element?”, “Mule”: “Which element is a Lanthanide?”, “Goose”: “Which element is Actinide?”, “Sheep”: “What element is considered an Alkali Metal?”, “Armadillo”: “What element is a Noble Gas?”}
dict4 = { (Xe, Xenon): “What breakfast food gets its name from the German word for “stirrup”?”, (I, Iodine): “What popular fruit was named after a papal estate outside Rome?”, (Cf, Californium): “What fruit did the Visigoths demand in ransom when they laid siege to Rome in 408?”, (Ce, Cerium): “What is the largest fruit crop on earth?”, (K, Potassium): “On what vegetable did an ancient Egyptian place his right hand when taking an oath?”}
end = ("Grapes", "Cantaloupe", "Peppercorn", "Onion", "Bagel")
Part 2: Sorting

Let’s suppose we have a large number of English words stored in a Python data structure. We want to quickly go through the structure and find a particular word. This exercise is about how to do this in Python, and how the different sequence types and built-in functions might help us with this.

Part 2b: Dictionaries

Now suppose the words are organized in a dictionary. Here is the example above in this new format:

```
WORDS_D = { 'a' : ['aqua'],
          'b' : ['brown', 'burgundy', 'blue', 'blue'],
          'c' : ['chartreuse'],
          'o' : ['orange', 'orange'],
          'r' : ['red'],
          'v' : ['violet'],
          'f' : ['fuschia'],
          'e' : ['emerald'],
          'y' : ['yellow'] }
```

1. Suppose you want to find out whether a particular word is in `WORDS_D`. How would you do this in Python?
2. Suppose you want to remove duplicate words? How would you do this in Python?

3. Does it help you for questions 1 and 2 if you know the lists are sorted?

4. Which format (using lists or dictionaries) is better for these tasks? Why?