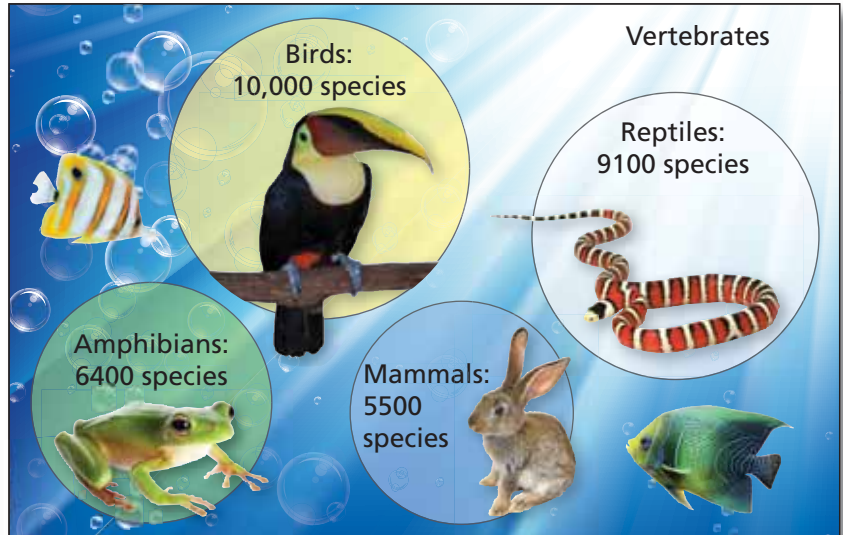EXAMPLE 6   **Finding the Complement of a Set**

There are about 62,300 species of vertebrates on Earth. They are classified as fish, amphibians, reptiles, mammals, and birds.

Vertebrates

Birds:
10,000 species

Reptiles:
9100 species

Amphibians:
6400 species

Mammals:
5500 species

a. How many species of fish are on Earth?

b. Would you say that there is more diversity among fish than among the other vertebrate classes? Explain your reasoning.
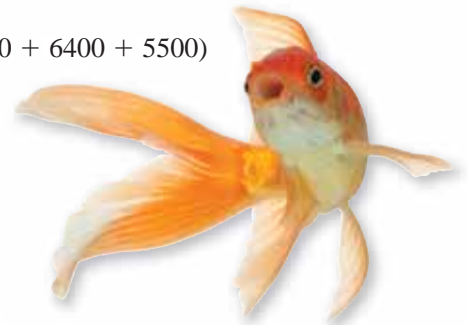
SOLUTION

a. Fish species $= 62,300 - (10,000 + 9100 + 6400 + 5500)$

$$= 62,300 - 31,000$$

$$= 31,300$$

There are about 31,300 species of fish on Earth.

b. There are more species of fish than in all of the other vertebrate classes combined. So, fish have a much greater species diversity than any of the other vertebrate classes.

Fish are found in nearly all aquatic environments, from high mountain streams to the depths of the deepest oceans.

✓ **Checkpoint**

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There are about 400 species of sharks.

Draw a set diagram that relates shark species with all other species of fish. Label the number of species in each region.