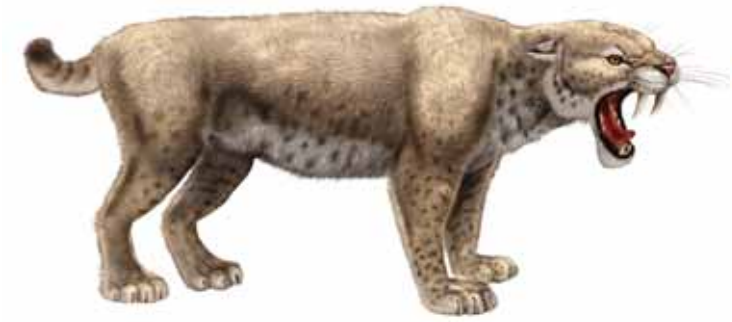
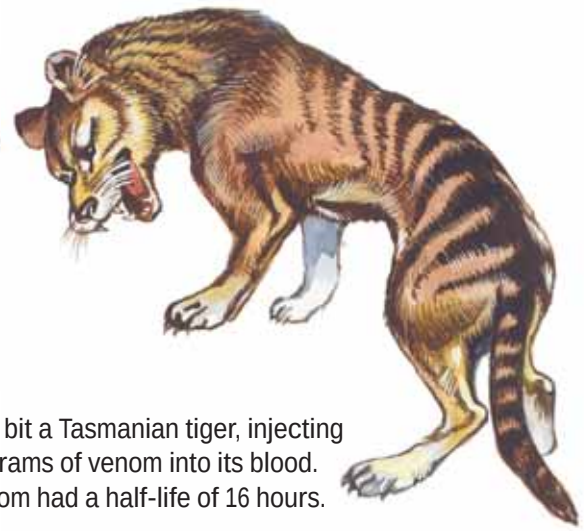
Snake Venom **In Exercises 7–12, use the information below.** ***(See Examples 3 and 4.)***

The half-life of a snake's venom is the amount of time it takes for 50% of the venom to be removed from an animal's body.



A snake bit a saber-toothed cat, injecting 20 milligrams of venom into its blood. The venom had a half-life of 40 hours.



A snake bit a Tasmanian tiger, injecting 40 milligrams of venom into its blood. The venom had a half-life of 16 hours.

7. Assume the saber-toothed cat was still alive after 80 hours. How much of the venom remained in its bloodstream?

8. Assume the Tasmanian tiger was still alive after 2 days. How much of the venom remained in its bloodstream?

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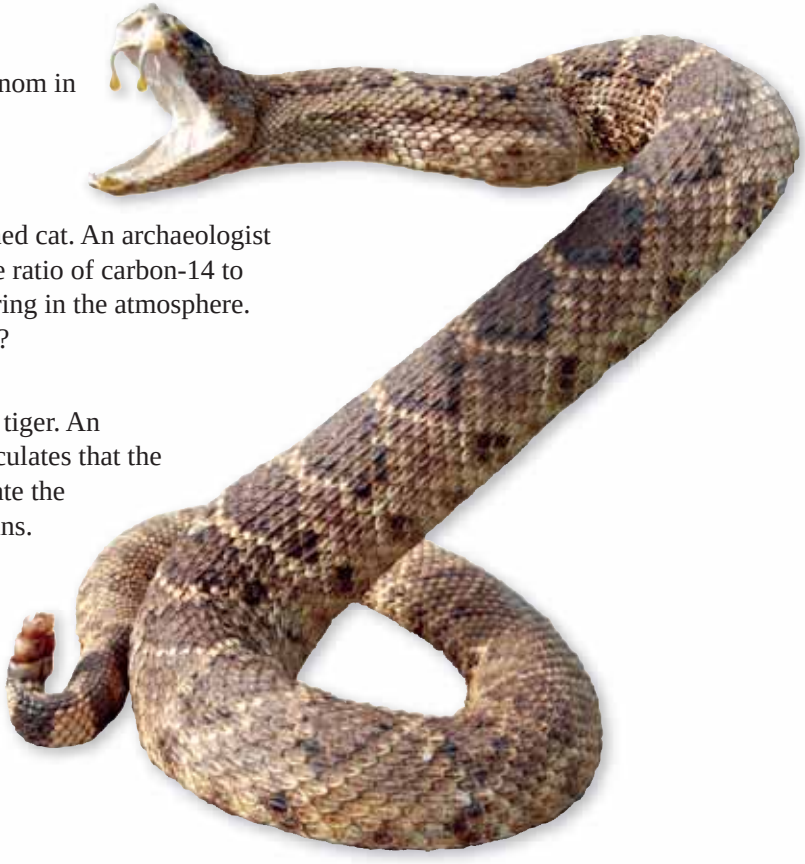
9. How long did it take the amount of venom in each animal's bloodstream to drop to 10 milligrams?



10. The venom eventually killed the saber-toothed cat. An archaeologist discovers the remains and calculates that the ratio of carbon-14 to carbon-12 is about one-eighth of that occurring in the atmosphere. How long ago did the saber-toothed cat live?

11. The venom eventually killed the Tasmanian tiger. An archaeologist discovers the remains and calculates that the Tasmanian tiger lived 500 years ago. Estimate the ratio of carbon-14 to carbon-12 in the remains.

12. Suppose the half-life of the venom injected into the saber-toothed cat was only 20 hours. Would this increase or decrease the answer to Exercise 7? Explain.