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SIMIODE Systemic Initiative for Modeling
Investigations and Opportunities with Differential Equations

STUDENT VERSION

DOG DRUGS

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STATEMENT

In [1, p. 166, Exercise 6] the following problem is posed.

In the dog, an intravenous dose of 30 mg of pentobarbital sodium per kilogram of body weight will usually produce surgical anesthesia. Also in the dog, pentobarbital has a biological half-life of about 4.5 hours, due almost entirely to metabolism.

You anesthetize a 14-kg dog with the above dose of pentobarbital. Two hours later the anesthesia is obviously beginning to lighten and you want to restore the original depth of anesthesia. How many milligrams of pentobarbital sodium should you inject?

REFERENCES

- [1] Riggs, D. S. 1963. *The Mathematical Approach to Physiological Problems*. Cambridge MA: The M.I.T.Press.