

# Homework

p. 489: 3-6, 14, 19, 30, 31

**CLASSIFYING FUNCTIONS** Tell whether the function represents *exponential growth* or *exponential decay*.

3.  $f(x) = 3\left(\frac{3}{4}\right)^x$

4.  $f(x) = 4\left(\frac{5}{2}\right)^x$

5.  $f(x) = \frac{2}{7} \cdot 4^x$

6.  $f(x) = 25(0.25)^x$

**GRAPHING FUNCTIONS** Graph the function.

14.  $h(x) = -3\left(\frac{3}{8}\right)^x$

**TRANSLATING GRAPHS** Graph the function. State the domain and range.

19.  $y = \left(\frac{2}{3}\right)^{x-4} - 1$

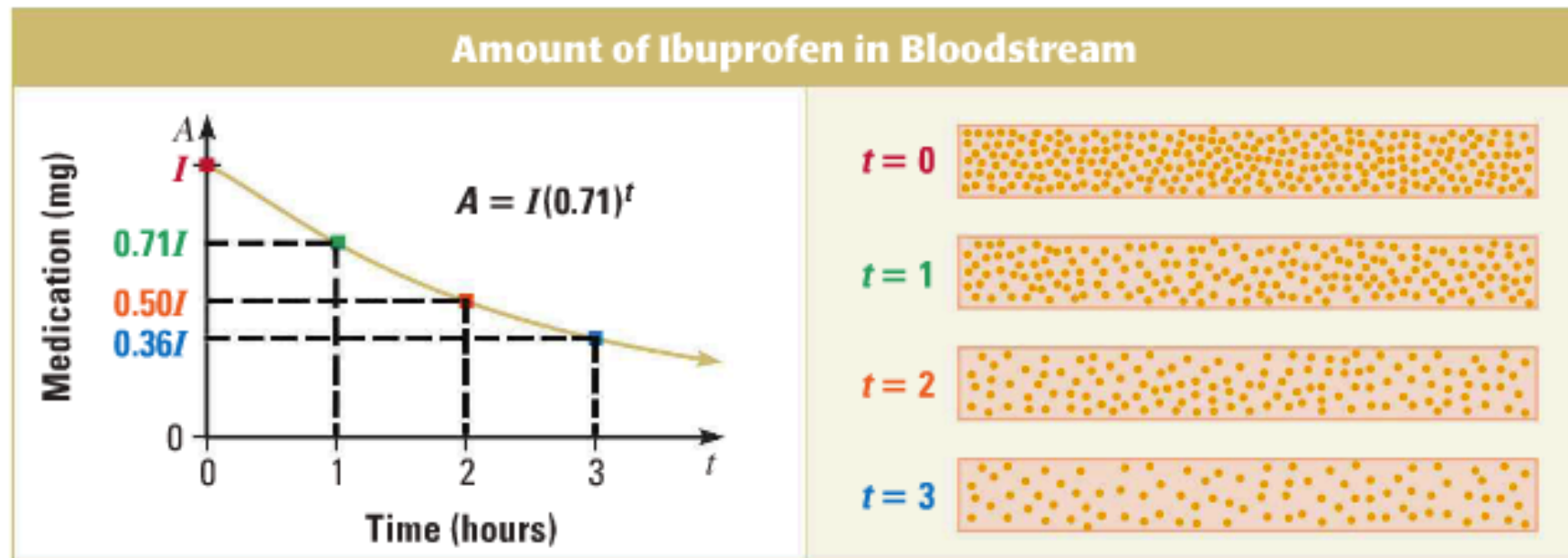
**\*\*Find the asymptote as well**

31. **BIKE COSTS** You buy a new mountain bike for \$200. The value of the bike decreases by 25% each year.

- Write a model giving the mountain bike's value  $y$  (in dollars) after  $t$  years. Use the model to estimate the value of the bike after 3 years.
- Graph the model.
- Estimate when the value of the bike will be \$100.

**Problem 30 is on next slide!**

30. **MEDICINE** When a person takes a dosage of  $I$  milligrams of ibuprofen, the amount  $A$  (in milligrams) of medication remaining in the person's bloodstream after  $t$  hours can be modeled by the equation  $A = I(0.71)^t$ .



Find the amount of ibuprofen remaining in a person's bloodstream for the given dosage and elapsed time since the medication was taken.

- |                                      |                                      |                                    |
|--------------------------------------|--------------------------------------|------------------------------------|
| a. Dosage: 200 mg<br>Time: 1.5 hours | b. Dosage: 325 mg<br>Time: 3.5 hours | c. Dosage: 400 mg<br>Time: 5 hours |
|--------------------------------------|--------------------------------------|------------------------------------|