27. **TAKS REASONING** What is the asymptote of the graph of $y = \left(\frac{1}{2}\right)^{x-2} + 3$?

Ⓐ $y = -3$ Ⓑ $y = -2$ Ⓒ $y = 2$ Ⓓ $y = 3$

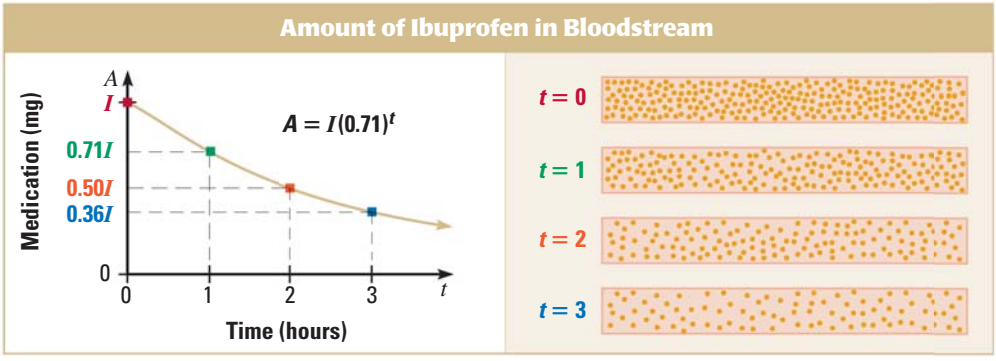
28. **OPEN-ENDED MATH** Write an exponential function whose graph lies between the graphs of $y = (0.5)^x$ and $y = (0.25)^x + 3$.

29. **CHALLENGE** Do $f(x) = 5(4)^{-x}$ and $g(x) = 5(0.25)^x$ represent the same function? *Justify* your answer.

PROBLEM SOLVING

EXAMPLE 4 on p. 488 for Exs. 30–31

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
Time: 1.5 hours

b. Dosage: 325 mg
Time: 3.5 hours

c. Dosage: 400 mg
Time: 5 hours

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

a. 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.

b. Graph the model.

c. Estimate when the value of the bike will be $100.

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32. **DEPRECIATION** The table shows the amount d that a boat depreciates during each year t since it was new. Show that the ratio of depreciation amounts for consecutive years is constant. Then write an equation that gives d as a function of t.

Year, t	1	2	3	4	5
Depreciation, d	$1906	$1832	$1762	$1692	$1627

= WORKED-OUT SOLUTIONS on p. WS1

= TAKS PRACTICE AND REASONING