NAME _____ DATE _____

Practice 16

FOR USE WITH SECTION 3.3

For each function in Exercises 1–6, do the following:

a. Find the *y*-intercept of the graph.
b. Tell whether the graph represents exponential growth, exponential decay, or neither.
c. Sketch the graph.

1. $y = 160(0.85)^x$ **2.** $y = -2.5(1.14)^x$ **3.** $y = -370(0.6)^x$

4. $y = 18.4(1.08)^x$ **5.** $y = 3.8(0.75)^x$ **6.** $y = -145(1.6)^x$

7. a. Sketch the graph of $y = 2.8(1.1)^x$.

b. On the same axes sketch the reflection of the graph in part (a) over the *y*-axis and give the equation of the reflected graph.

c. On the same axes sketch the reflection of your original graph over the *x*-axis and give the equation of the reflected graph.

8. A certain arthritis medication is eliminated from the bloodstream at the rate of about 20% per hour in adults. The original dosage of the medication is 40 mg.

a. Write an equation of the form $y = ab^x$ for the amount of the medication that remains in the bloodstream after x hours.

b. How many hours will it take for half the medication to be eliminated?

c. Write an equation of the form $y = a \cdot \left(\frac{1}{2}\right)^{x/h}$ for the amount remaining after x hours.

9. $1500 is invested in a bank at 2.5% interest, compounded annually.

a. Write an equation of the form $y = ab^x$ for the amount in the account after x years.

b. How many years will it take for the original amount to double?

c. Write an equation of the form $y = a \cdot (2)^{x/d}$ for the amount of money in the account after x years.

10. Find the doubling time of money in a bank account offering interest compounded annually at each rate. Round each doubling time to the nearest whole number of years.

a. 7% **b.** 10% **c.** 2% **d.** 14%