Chp. 7.4-7.5 Quiz - 2nd ed.

____ 1. Sara bought 9 fish. Every month the number of fish she has doubles. After *m* months she will have *F* fish, where $F = 9 \cdot 2^m$. How many fish will Sara have after 2 months if she keeps all of them and the fish stay healthy?

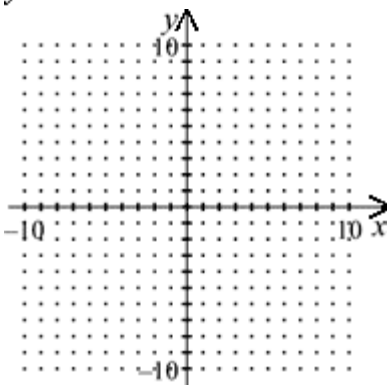
a. 20 b. 36 c. 13 d. 324

____ 2. If there are initially 5000 bacteria in a culture, and the number of bacteria double each hour, the number of bacteria after *t* hours can be found using the formula $N = 5000\left(2^t\right)$. How long will it take the culture to grow to 40,000 bacteria?

a. 0.9 hr b. 1.8 hr c. 17.5 hr d. 3 hr

Graph the function.

3. $y = 4^x$



4. The amount of money, *A*, accrued at the end of *n* years when a certain amount, *P*, is invested at a compound annual rate, *r*, is given by $A = P(1 + r)^n$. If a person invests $160 in an account that pays 7% interest compounded annually, find the balance after 5 years.

5. Write an exponential function to model the situation. Then estimate the value of the function after 5 years (to the nearest whole number).
A population of 340 animals that increases at an annual rate of 12%.

6. How much money must be deposited now in an account paying 7.25% annual interest, compounded quarterly, to have a balance of $1000 after 10 years?

Write a rule for the function.

7.

x	-2	-1	0	1	2
y	$\frac{5}{2}$	5	10	20	40

8. Malcolm invested $3000 in a small company. He predicts that the value of his investment will increase by 7% per year. Assume that his prediction is correct.
   a. Write a function that represents the value of Malcolm's investment over time.

   b. Make a table showing the value of his investment after 0, 1, 2, and 3 years. Round to the nearest dollar.

   c. After how many years will the value of Malcolm's investment be more than double his initial investment of $3000? Explain.

a.

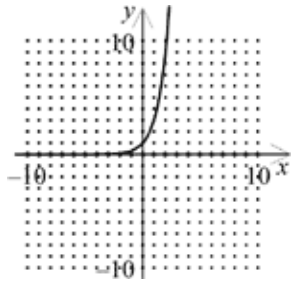
b.

c.

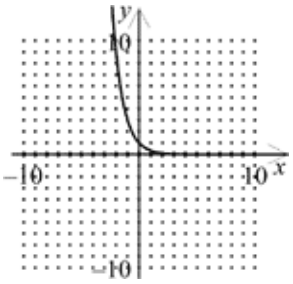
Graph the function.

____ 9. $y = \left(\frac{1}{3}\right)^x$

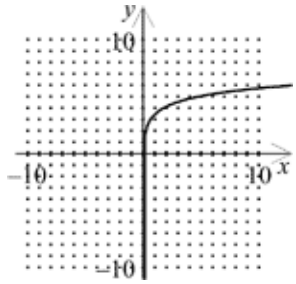
a.



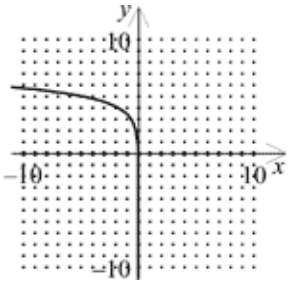
c.



b.



d.

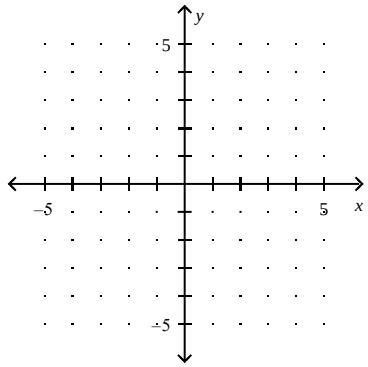


10. Choose the equation that represents *exponential decay*.

a. $y = (1.081)^t$ b. $y = (0.79)^t$

Graph the function and label as *exponential growth* or *exponential decay*.

11. $y = 3(0.9)^x$



12. The enrollment at Beta-Gamma School District has been declining 3.5% each year from 1986 to 1992. If the enrollment in 1986 was 1815, find the 1992 enrollment.

13. **Multi-Step Problem:** Examine the following table.

x	22	21	0	1	2
y	24	12	6	3	$\frac{3}{2}$

a. Do the values in the table represent an exponential function? Explain.

b. Write a rule for the function.

c. Graph the function.