

Without graphing, determine whether the function represents exponential growth or exponential decay. Then find the y-intercept.

9) $y = 4(1.46)^x$

4, Growth

10) $y = 2\left(\frac{9}{10}\right)^x$

2, Decay

2

11) $y = 6\left(\frac{11}{6}\right)^x$

6, growth

12) $y = \frac{5}{99}\left(\frac{4}{3}\right)^x$

$\frac{5}{99}$, Growth

Use the formula $A = a(1 + r)^t$ to answer the following.

3

13) You own a business that is growing exponentially at a rate of 6.3% per year. The current number of employees is 50, and you like to know about how many employees you will have in 5 years if the company continues to grow at the same rate. How many will you have?

$$A = 50(1 + 0.063)^5 = \boxed{68 \text{ people}}$$

14) A house is purchased for \$230,000. Just after purchasing the house, the market begins to go down exponentially at a rate of 2% a year. How much is the house worth after 3 years? After 6 years?

$$A = 230,000(1 - 0.02)^3 = \boxed{\$216,474.16}$$

$$A = 230,000(1 - 0.02)^6 = \boxed{\$203,743.75}$$

15) A car depreciates at a rate of 5.1% per year. The original price of the vehicle is \$29,000. What is the price of the vehicle after 3 years?

$$A = 29,000(1 - 0.051)^3 = \boxed{\$24,785.44}$$