

14. What is the common difference of the arithmetic sequence shown below?

$$\dots, \frac{1}{4}, \frac{3}{4}, 1\frac{1}{4}, 1\frac{3}{4}, 2\frac{1}{4}, 2\frac{3}{4}, \dots$$

- A.  $\frac{1}{4}$   
B.  $\frac{1}{3}$   
C.  $\frac{1}{2}$   
D.  $\frac{3}{4}$
15. Formulas of an exponential function and an arithmetic sequence are recorded below.

$$g(x) = 5^{x+1} - 11$$

$$a_n = 100n - 86$$

Which statement about  $g(x)$  and  $a_n$  is true?

- A. Both  $g(x)$  and  $a_n$  are functions having a domain of  $(-\infty, \infty)$ .  
B. The arithmetic sequence  $a_n$  is not a function because its domain is limited to natural numbers.  
C. Since  $g(1) = a_1 = 14$  and  $g(2) = a_2 = 114$ ,  $g(x)$  and  $a_n$  are equivalent on the interval  $[1, 2]$ .  
D. All elements of the domain of  $a_n$  are in the domain of  $g(x)$ , but some elements of the domain of  $g(x)$  are not in the domain of  $a_n$ .

16. Formulas of a quadratic function and an exponential function are recorded below.

$$f(x) = x^2 - 14x + 49$$

$$h(x) = 3^{7x+2}$$

Which statement about  $f(x)$  and  $h(x)$  is **not** true?

- A. Since exponential functions have a greater rate of increase than quadratic functions,  $h(x)$  has a greater maximum value than  $f(x)$ .  
B. There is exactly one element in the range of  $f(x)$  that is not in the range of  $h(x)$ .  
C. Each function has all real numbers as its domain.  
D. Both  $f(x)$  and  $h(x)$  are increasing on the interval  $(7, \infty)$ .
17. To rent a bicycle, a bike shop charges a deposit plus an hourly rate. Martin can determine how much he will have to pay for a rental lasting  $t$  hours by using the function  $f(t) = 8t + 20$ . What does the coefficient 8 most likely represent?
- A. the length of time of the rental  
B. insurance for the bicycle  
C. the hourly rate for renting the bicycle  
D. the deposit for the bicycle