UNIT 23 EXERCISES 11-15

FUNCTIONS

2008A 12. A function f has domain $[0,2]$ and range $[0,1]$. (The notation $[a,b]$ denotes $\{x : a \leq x \leq b\}$.) What are the domain and range, respectively, of the function g defined by $g(x) = 1 - f(x+1)$?

(A) $[-1,1],[-1,0]$ **(B)** $[-1,1],[0,1]$ **(C)** $[0,2],[-1,0]$ **(D)** $[1,3],[-1,0]$ **(E)** $[1,3],[0,1]$

2004B 13. If $f(x) = ax + b$ and $f^{-1}(x) = bx + a$ with a and b real, what is the value of $a + b$?

(A) -2 **(B)** -1 **(C)** 0 **(D)** 1 **(E)** 2

2002A 14. For all positive integers n, let $f(n) = \log_{2002} n^2$. Let

$$N = f(11) + f(13) + f(14).$$

Which of the following relations is true?

(A) $N > 1$ **(B)** $N = 1$ **(C)** $1 < N < 2$ **(D)** $N = 2$ **(E)** $N > 2$

1999 15. Let x be a real number such that $\sec x - \tan x = 2$. Then $\sec x + \tan x =$

(A) 0.1 **(B)** 0.2 **(C)** 0.3 **(D)** 0.4 **(E)** 0.5