The Weekly Rigor

No. 115 "A mathematician is a machine for turning coffee into theorems." September 3, 2016

SAT Math Test Problem Children: Function Notation

(Part 3)

ANSWERS

1. $6x + 6$	5. 13	9. -3
2. $8x + 7$	6. 7	10. -17
3. $6x + 4$	7. 1	11. 9
4. $2x + 5$	8. -1	12. -42

SELECTED SOLUTIONS

1. To solve this problem, we simply substitute the expression "$-2x$" in place of "x" in the given equation $f(x) = -3x + 6$. Hence, we get $f(-2x) = -3(-2x) + 6$, which simplifies to $f(-2x) = 6x + 6$. So, the answer is "$6x + 6$."

5. To answer this problem, first note that $g(2) = 3(2) + 2$. Hence, by substitution, $f(2) = g(2) + 5 = [3(2) + 2] + 5 = 8 + 5 = 13$, viz., the answer is 13.

9. This problem requires two steps. First, solving for the value of b. Second, using the value of b to find $f(-2)$. Since $f(4) = 6$, $6 = \frac{3}{2}(4) + b$. Hence, $6 = 3(2) + b$. So, $6 = 6 + b$. Thus, $0 = b$. Now we can reformulate the function as $f(x) = \frac{3}{2}x + 0$. Hence, $f(-2) = \frac{3}{2}(-2) + 0 = -3 + 0 = -3$. Therefore, the answer is -3.

12. This problem requires two steps. First, solving for the value of b. Second, using the value of b to find $f(-24)$. Since $f(16) = -12$, $-12 = \frac{6}{8}(16) + b$. Hence, $-12 = 6(2) + b$. So, $-12 = 12 + b$. Thus, $-24 = b$. Now we can reformulate the function as $f(x) = \frac{6}{8}x - 24$. Hence, $f(-24) = \frac{6}{8}(-24) - 24 = -18 - 24 = -42$. Therefore, the answer is -42.