49 Pauline works as a sales representative for a book publishing company. Her monthly salary is calculated as follows: $S = \$2{,}000 + (0.18)(d - \$6{,}000)$. In this equation, S = her monthly salary and d = dollars of sales. (Pauline has always managed to sell at least $6,000 worth of books each month.) Last month, her salary was $2,594. How many dollars worth of sales did she have?

50 What is the reduced form of the fraction $\dfrac{x^2 - 7x - 30}{2x^2 + 7x + 3}$?

(F) $\dfrac{x+3}{10}$

(G) $\dfrac{x-10}{3}$

(H) $\dfrac{x-10}{2x+1}$

(I) $\dfrac{x+3}{2x+1}$

51 Consider the relation {(0, 7), (1, 7), (7, 1), (8, 2), (x, 9)}. How many different values could x assume so that this relation is NOT a function?

(A) 1

(B) 2

(C) 3

(D) 4

52 What is the simplified form for $\sqrt{12x} - 4\sqrt{27x} + 5\sqrt{192x}$?

(F) $30\sqrt{3x}$

(G) $6\sqrt{23x}$

(H) $2\sqrt{23x}$

(I) $59\sqrt{3x}$

Answers

49 The correct answer is 9300. Substitute 2,594 for S. Then $2,594 = 2,000 + (0.18)(d - 6,000)$. This equation simplifies to $2,594 = 2,000 + 0.18d - 1,080$. Then $0.18d = 2,594 - 2,000 + 1,080 = 1,674$. Thus, $d = \dfrac{1,674}{0.18} = 9,300$.

50 **(H)**

$\dfrac{x^2 - 7x - 30}{2x^2 + 7x + 3} = \dfrac{(x+3)(x-10)}{(x+3)(2x+1)}$. Then cancel out the common factor of $(x + 3)$ in the numerator and denominator. The result is $\dfrac{x-10}{2x+1}$.

51 **(D)**

If x assumes any of the values 0, 1, 7, or 8, then this relation would contain two elements with the same x value but different y values. By definition, for any function, each given x value must correspond to exactly one y value.

52 **(F)**

$\sqrt{12x} = (\sqrt{4})(\sqrt{3x}) = 2\sqrt{3x}$. Also, $4\sqrt{27x} = (4)(\sqrt{9})(\sqrt{3x}) = 12\sqrt{3x}$. In addition, $5\sqrt{192x} = (5)(\sqrt{64})(\sqrt{3x}) = 40\sqrt{3x}$. Thus, $2\sqrt{3x} - 12\sqrt{3x} + 40\sqrt{3x} = 30\sqrt{3x}$.