(B)

MSL SAMPLE ITEMS

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The function below determines the amount of yearly tax a person must pay, which is based on the amount of money they earn each year.

$$t(x) = \begin{cases} 0.10x & ,0 \le x < 12{,}750 \\ 0.07(x - 12{,}750) + 765 & ,12{,}750 \le x < 60{,}000 \\ 0.0775(x - 60000) + 4{,}072.50 & ,x \ge 60{,}000 \end{cases}$$

a. Describe the domain and range of the tax function in context.

b. Identify the domain and range of t(x).

c. Based on the function provided, explain how the amount of tax owed changes if your earnings increase from $10,000 to $50,000.

Domain(x): the amount of money a person will make in a year
Range t(x): The amount of taxes a person will pay in a year based on there income

Domain(x): $0 \le x$
Range t(x): $0 \le t(x)$

$10,000 you only have to pay 10 cents per dollar earned, so you would owe $1,000 in taxes that year but once you make $12,750 or more, you only pay 7 cents per dollar earned over 12,750 + an extra amount so you would have to pay $3,372.50 in taxes that year
your taxes owed would go from $1,000 to $3372.50 so you would owe $2372.50 more when you make $50,000 than when you make $10,000.