



MSL SAMPLE ITEMS

CR—

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.

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

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

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

domain: $x \geq 0$ range: $t(x) \geq 0$

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

The person will owe \$2372.50 more when their earnings increase from \$10,000 to \$50,000.

Domain: the amount someone earns in a year from \$0 to any value greater than 0.

Range: amount of taxes a person will pay from \$0 to any value greater than 0.