

Alan's camping troop is selling popcorn to earn money for an upcoming camping trip. Each camper starts with a credit of \$25 toward his sales, and each box of popcorn sells for \$3.75.

Alan can also earn bonus prizes depending on how much popcorn he sells. The table shows the different prizes for each of the different sales levels. Each troop member can choose any one of the prizes at or below the sales level.

Sales (dollars)	Gift Cards (2 of each value)	Bonus Prizes
\$250	\$10	
\$350	\$15	
\$450	\$20	
\$600		Cyclone Sprayer
\$650	\$30	
\$850	\$40	
\$1100	\$55	
\$1300	\$75	
\$1500		Choose your prize!
\$1900	\$110	
\$2300	\$150	
\$2500		6% toward college scholarship

- a) Write a function, $f(b)$, to show Alan's total sales as a function of the number of boxes of popcorn he sells.

$$f(b) = 3.75b + 25$$

- b) Analyze the function you wrote:

What is the independent variable and units?

boxes

What is the dependent variable and units?

total sales

- c) What is the rate of change and what does it represent in this problem situation?

$$R.O.C. = 3.75$$

It represents the cost of a box of popcorn.

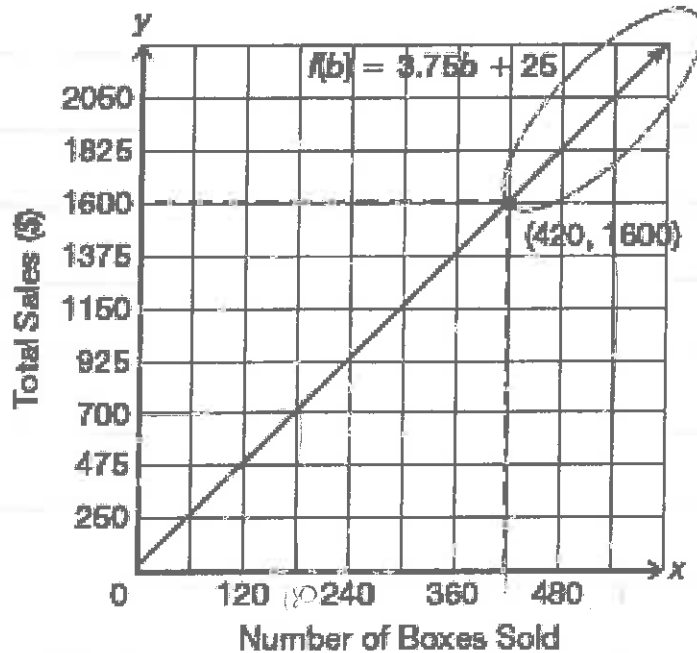
- d) What is the y-intercept and what does it represent in this problem situation?

$$25 = y\text{-int.}$$

It represents the starting credit

Now, let's analyze your function represented on a graph.

The graph shown represents the change in the total sales as a function of boxes sold. The oval and box represent the total sales at specific intervals.



Use the graph to answer each question. Write an equation or inequality statement for each.

- a) How many boxes would Alan have to sell to earn at least \$1600?

Alan would have to sell at least 420 boxes of popcorn to earn at least \$1600

- b) How many boxes would Alan have to sell to earn less than \$2050?

Alan would have to sell less than 540 boxes of popcorn.

- c) How many boxes would Alan have to sell to earn exactly \$700?

Alan would have to sell exactly 180 boxes of popcorn to earn \$700