

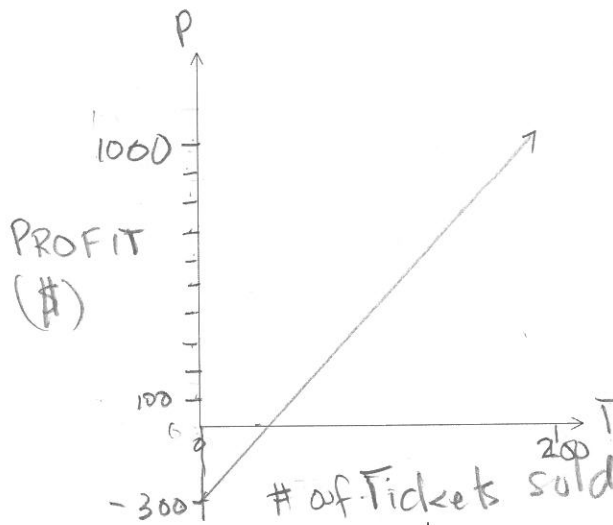
Example 5: Linear Application with Verbal Description Given

The student council is planning to hold a fundraising dinner. They will profit \$8 per dinner ticket and the other costs for the dinner are for the hall rental and the music, which total to \$300. Fill in the table below for this situation.

# of Tickets Sold	0	15	25	50	100
Total Profit \$	-300	$-300 + 120$ -180	$-300 + 200$ -100	$-300 + 400$ 100	$-300 + 800$ 500

a) Graph the scatterplot of the data.

Window
 $x - \min = 0$
 $x - \max = 200$
 $y - \min = -350$
 $y - \max = 1500$



c) Is the relation linear? Explain. If so, sketch the linear regression equation on the grid above, and write the regression equation below. *yes. Each ticket will give a profit of \$8.00*

$$y = 8x - 300$$

d) How many tickets do they have to sell in order to 'break even'? To break even means to have a 'profit' of \$0. *Find the x-intercept: Profit (y=0) is zero,*

$y=0$ 2^{nd} TRACE 5 -intersect ENTER \leftarrow 3 times $x = 37.5$

e) What is the profit if 180 tickets are sold? *they will have to sell 38 tickets*

2^{nd} TRACE ENTER $x = 180$ ENTER $y = 1140$

\$ 1140.

f) If their goal is to make \$1000, how many tickets do they have to sell?

$y = 1000$ 2^{nd} TRACE 5 ENTER \leftarrow 3 times $x = 162.5$

they have to sell 163 tickets