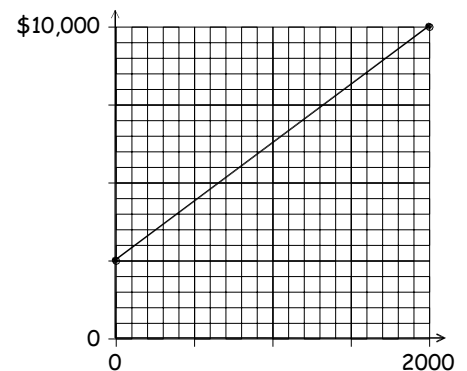


Answers must be clearly **legible, simplified** and **boxed or circled**. Unless otherwise stated write answer as an **exact** integer, fraction or use **two** decimal accuracy. **Units** required where appropriate.

Questions 1 - 10 refer to the following graph and data.

A company buys a machine to produce souvenirs. The plot shows their *production cost*. $x = \text{qty}$, $y = \text{dollars}$.



- 1) What is the cost of the machine (fixed cost)?
- 2) Once the machine is paid for, what does it cost to produce each item (variable cost)?
- 3) Write the equation for the net production cost (including the machine). This is your Cost equation. Enter it in Y_1 to check.
- 4) Suppose the items are sold for \$15 each. What would the revenue equation be?

Use the following data and the TI's linear regression feature to answer the following questions.

- 5) As price goes up, demand will drop. Considering Selling Price vs. # Sold, which should be the *dependent variable*?

Selling Price	\$20	\$22.50	\$25
# Sold	1524	1248	1010

- 6) Use the TI to find an equation for # Sold as a function of Selling Price. Write it here and save in Y_2 .
- 7) According to the regression equation, what selling price will generate 2000 souvenirs sold?
- 8) According to the regression equation, what selling price will generate zero souvenirs sold?
- 9) According to the regression equation, if the selling price is set to \$15 how many will be sold?
- 10) If the selling price is set to \$15, using #9's result, what will be the company's net profit?