

Canoe Shop



Name _____

A friend of yours wants to open up a canoe shop. She wants to make the canoes herself. The building rental costs her \$3000. Her electric bill is \$1200. The wood and metal-working equipment costs her \$4800. The wood for one canoe costs \$120. The wood for one paddle costs \$15. The lacquer for one canoe and paddle set costs \$45. The metal that she uses for all of the fasteners/joints cost \$10 per canoe.

Cost: What your friend has to pay in order to produce the canoes.

Fixed Costs- _____

Costs per Canoe- _____

- 1) If x = the number of canoes she makes, and $C(x)$ = the cost to make x canoes, write a function for $C(x)$.

Revenue: Money your friend gets from selling canoes.

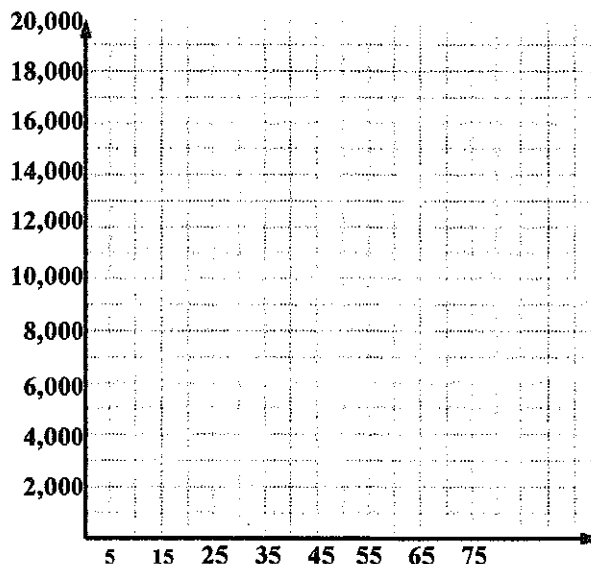
- 2) If she charges \$500 per canoe, and $R(x)$ = the revenue from selling x canoes, write a function for $R(x)$.

Profit: What your friend makes from the canoe sales. (Profit = Revenue – Cost)

- 3) If she charges \$500 per canoe, and $P(x)$ = the profit from selling x canoes, write a function for $P(x)$.

- 4) What would the break-even point of this system of equations represent?

Find the break-even point graphically.
 (Do not forget to title your graph and both the x and y axis.)



5) Now, let's say that she wants to make more money. She does two things: she raises the price of each canoe by \$50, and she rents out half of her building to another small business. She charges them \$1600. Write new functions for $R(x)$, $C(x)$, & $P(x)$.

6) What is the break-even point for her canoe business?

7) How does her new strategy benefit her canoe business? How could the new strategy hurt her business.

8) If you were the one in charge of the canoe shop what would you do to improve the business?
