

# Day 8 - Profits, Costs, and Break Even Points - Practice

1. The cost of producing an item is \$500 at the break - even point. What is the income from selling the same item at the break - even point?

$\$500$

2. Which equation gives the relationship between profit, cost, and income?

A. profit = cost - income

**B. profit = income - cost**

C. profit = cost + income

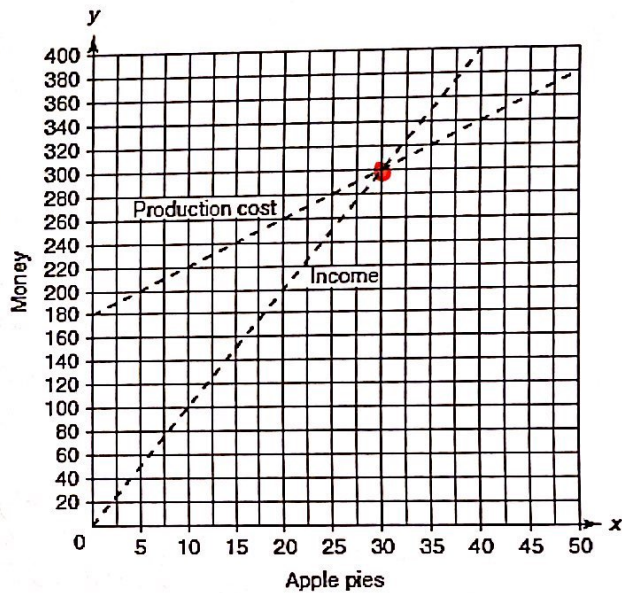
D. profit = cost x income

3. Use the graph to answer the following questions:

Point of Intersection:  $(30, 300)$

Break Even Point: 30 apple pies

They need to sell at least 31 apple pies to make a profit.



4. Max wants to start his own lemonade stand. It costs him \$3 to make each cup of lemonade, plus he has to pay a \$25 renter's fee for his stand. He sells the lemonade for \$5 per cup. Max wants to know how many cups of lemonade he has to sell before he can start making a profit. What would you tell him?

Cost:  $y = 3x + 25$

Income:  $y = 5x$

$5x = 3x + 25$

$2x = 25$

$x = 12.5$

He needs to sell at least 13 cups to make a profit.

5. Sarah is the manager of Movie Hits, a video store. She is in charge of buying the videos for the store to sell. She buys videos from a wholesaler that sells them for \$8 each plus a fee of \$200. Sarah then sells the videos for \$12 each.

- a. Create an equation to represent her cost to purchase videos.  $y = 8x + 200$
- b. Create an equation to represent her income from selling videos.  $y = 12x$

c. How many videos does she have to sell to break even? What will her income/costs be?

$$8x + 200 = 12x$$

$$200 = 4x$$

$$50 = x$$

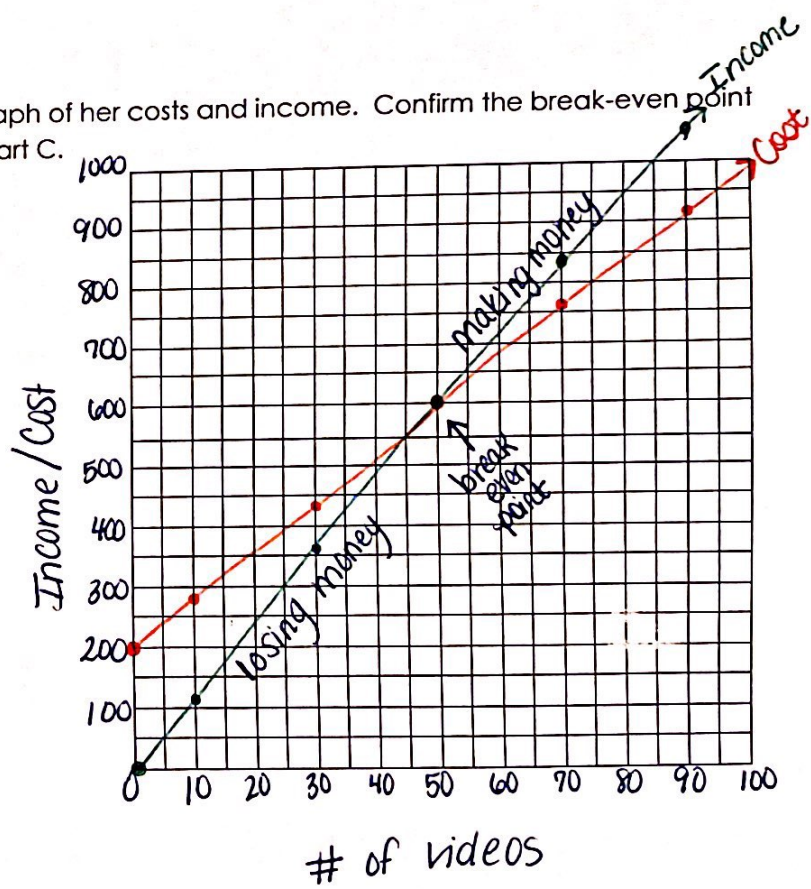
$$y = 12(50)$$

$$y = 600$$

She has to sell 50 videos. Her costs / income would be \$600.

d. Complete the table below and then create a graph of her costs and income. Confirm the break-even point in the table and on the graph with your answer in part C.

Number of Videos	Cost ●	Income ●
x	$8x + 200$	$12x$
0	200	0
10	280	120
30	440	360
50	600	600
70	760	840
90	920	1080



e. How many videos must be sold to make a profit?

At least 51 videos