LESSON MAKER PRO

Break-Even Blueprint

Find the sales volume that covers every cost.

HIGH SCHOOL · MA.912.FL.3.12

MA.912.FL.3.12 "Given fixed costs, per item costs and selling price, determine the break-even point for sales volume."

NAME _____ DATE _____

COVERING COSTS

Each item contributes the selling price minus the per-item cost toward fixed costs. Divide fixed costs by that contribution to find the break-even sales volume. If you can sell only whole items and the result is not whole, round up to the next item.

WORKED EXAMPLE

A club has fixed costs of $420. Each item costs $6 to make and sells for $18. What sales volume is the break-even point?

1. Contribution per item = $18 - $6 = $12.
2. Break-even volume = $420 / $12 = 35.
3. At 35 items, revenue is $630 and total cost is $420 + $210 = $630.

Answer: 35 items

PRACTICE 6 problems

1 A business has fixed costs of $240. Each item costs $4 to make and sells for $10. What is the break-even sales volume?

ANSWER _____

2 A seller has fixed costs of $525. Each item costs $5 and sells for $12. What is the break-even sales volume?

ANSWER _____

3 A project has fixed costs of $180. Each item costs $3 and sells for $9. What is the break-even sales volume?

ANSWER _____

4 A company has fixed costs of $640. Each item costs $8 and sells for $16. What is the break-even sales volume?

ANSWER _____

5 A fundraiser has fixed costs of $270. Each item costs $2 and sells for $11. What is the break-even sales volume?

ANSWER _____

6 A shop has fixed costs of $900. Each item costs $9 and sells for $24. What is the break-even sales volume?

ANSWER _____

APPLY IT Show your work

1 You want to sell custom water bottles for a school event. You must pay $385 for a design setup. Each bottle costs $8 to buy, and you will sell each bottle for $15. How many bottles must you sell to break even?

WORK SPACE

ANSWER _____

2 The robotics team is selling keychains to raise money for a competition. The team pays $504 for a machine rental, spends $7 on materials for each keychain, and sells each keychain for $16. How many keychains must the team sell to break even?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A student music group pays $1,050 to reserve a recording space. Each album costs $5 to produce and sells for $17. Albums can be sold only as whole items. What is the minimum number of albums the group must sell to avoid a loss? Explain why selling one fewer album does not work.

WORK SPACE AND ANSWER

ANSWER KEY

Break-Even Blueprint

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A business has fixed costs of $240. Each item costs $4 to make and sells for $10. What is the break-even sales volume?	**40 items**
2	A seller has fixed costs of $525. Each item costs $5 and sells for $12. What is the break-even sales volume?	**75 items**
3	A project has fixed costs of $180. Each item costs $3 and sells for $9. What is the break-even sales volume?	**30 items**
4	A company has fixed costs of $640. Each item costs $8 and sells for $16. What is the break-even sales volume?	**80 items**
5	A fundraiser has fixed costs of $270. Each item costs $2 and sells for $11. What is the break-even sales volume?	**30 items**
6	A shop has fixed costs of $900. Each item costs $9 and sells for $24. What is the break-even sales volume?	**60 items**

PART 2 · APPLY IT

1. **55 bottles** Each bottle contributes $15 - $8 = $7 toward the setup cost. Divide $385 by $7 to get 55 bottles.
2. **56 keychains** Each keychain contributes $16 - $7 = $9 toward the machine rental. Divide $504 by $9 to get 56 keychains.

CHALLENGE

88 albums. Each album contributes $17 - $5 = $12, and $1,050 / $12 = 87.5, so the group must round up. At 87 albums, the contribution is $1,044, which is $6 short of the fixed cost.

Accept equivalent work that subtracts per-item cost from selling price before dividing fixed costs. For the challenge, accept 87.5 as the algebraic break-even point only if the student also states that 88 whole albums are needed to avoid a loss.