One More Night

How changing opportunity costs can reverse a decision

SS24.E.2 "Compare marginal benefits and marginal costs of an action, using rational decision-making. 2a Analyze how changes in opportunity costs impact the rational decision-making of individuals, businesses, and governments..."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB In each paragraph, underline the added benefit, circle the direct costs, and label the first and later opportunity costs 1 and 2 to show why the decision changes.

A Night at the Market

1. At a Saturday night market, Maya considers working one more shift at a food stall. The shift would add $80 to her take-home pay. Child care would cost $25. At first, Maya would miss a live training class she values at $70. Her marginal benefit is $80, while her marginal cost is $95: child care plus the value of the best alternative she gives up. She declines. When the class moves to Tuesday, her best alternative on Saturday is exercise she values at $20. The marginal cost falls to $45, so taking the shift now offers a $35 net gain.

2. The stall owner also considers opening for one additional shift. Expected extra sales are $210. Extra ingredients cost $50, and wages cost $100, including payroll costs, so Maya's take-home pay can be lower. The owner could instead rent the stall to a baker for $90 in net income. That forgone income makes the marginal cost $240, above the $210 benefit. Later, renting to the baker would bring only $30 in net income. The cost of opening falls to $180, and the owner chooses to open. The change in the best alternative, not the sales forecast, reverses the decision.

3. The city council considers adding one night of lighting at the market. Officials estimate $600 in added public benefits from safer walking and more visits. Supplies and hired installation work cost $400. At first, assigning a city crew to lighting would delay park repairs worth $300 in public benefits. Total marginal cost is $700, so the council rejects the lighting. After volunteers take over the repairs, the crew's next best task, repainting benches, is worth $100. The cost falls to $500, and the council approves the lighting. Its estimates may be uncertain, but the decision follows the same comparison.

2 ANSWER WITH EVIDENCE

Use the passage

1. Before the class moves, what are Maya's marginal benefit and marginal cost for one more shift? Explain why declining is rational.

2. After the baker's offer changes, calculate the owner's marginal cost of opening for one more shift. Why does the owner choose to open?

3. Compare the council's marginal costs before and after volunteers take over the park repairs. How does that change its decision?

4. Across all three decisions, did the added benefits or the opportunity costs change? Use one example to explain how that change reversed a choice.

3 YOUR TURN

Your own words

Invent a decision to do one more hour of an activity for an individual, business, or government. In 4 to 6 sentences, give its numeric marginal benefit, direct cost, and best alternative before and after that alternative changes; calculate both total marginal costs and state the rational choice each time.

ANSWER KEY

One More Night

GRADE 12 · SS24.E.2

PART 1 · READ AND MARK

In each paragraph, underline the added benefit, circle the direct costs, and label the first and later opportunity costs 1 and 2 to show why the decision changes. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Before the class moves, what are Maya's marginal benefit and marginal cost for one more shift? Explain why declining is rational.	**The benefit is $80. The cost is $95 ($25 child care plus a $70 forgone class), so the cost exceeds the benefit by $15.**
2	After the baker's offer changes, calculate the owner's marginal cost of opening for one more shift. Why does the owner choose to open?	**The cost is $180 ($50 ingredients, $100 wages, and $30 forgone rental income). It is $30 less than the $210 in extra sales.**
3	Compare the council's marginal costs before and after volunteers take over the park repairs. How does that change its decision?	**The cost falls from $700 ($400 plus $300) to $500 ($400 plus $100). It first exceeds the $600 benefit, then falls below it, so the council approves the lighting.**
4	Across all three decisions, did the added benefits or the opportunity costs change? Use one example to explain how that change reversed a choice.	**The added benefits stayed the same; the opportunity costs fell. For example, Maya's forgone alternative fell in value from $70 to $20, making the shift worth taking.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

A library considers staying open one extra hour, which it estimates would bring $150 in public benefits. Electricity and temporary staff would cost $100, and the director's best alternative, preparing a job fair, is worth $80. The first marginal cost is $180, so the library should not add the hour. When another team handles the job fair, the director's next best use of that hour is worth $20, making marginal cost $120; the library should add the hour because $150 exceeds $120.

Accept other valid examples of benefits or opportunity costs from the passage. For the open task, check that each marginal cost includes both the direct cost and the value of the best forgone alternative.