LESSON MAKER PRO

Costs That Change

Build and use rules for real-world costs

HIGH SCHOOL · A1P.AF.I

A1P.AF.I "Functions model a wide variety of real situations and can help students understand the processes of making and changing assumptions, assigning variables, and finding solutions to contextual problems."

NAME _____ DATE _____

START, THEN ADD

When a cost has a one-time fee and a charge for each item, use total cost = one-time fee + charge per item × x. Decide what x counts and which values of x make sense. If a charge changes, update that part of the rule.

WORKED EXAMPLE

A climbing gym charges $11 to join and $9 per visit. Let x be the number of visits. Write a cost rule and find the cost of 3 visits.

1. The one-time fee is $11, and each visit adds $9.
2. Total cost = 11 + 9x.
3. For 3 visits, total cost = 11 + 9(3) = 38.

Answer: Total cost = 11 + 9x; 3 visits cost $38.

PRACTICE 6 problems

1 A scooter rental charges $6 to unlock a scooter and $2 per ride. Let x be the number of rides. Write a rule for the total cost.

ANSWER _____

2 A game subscription costs $8 to start and $5 per month. Use total cost = 8 + 5x to find the cost of 2 months.

ANSWER _____

3 A school event charges a $12 booking fee plus $4 per ticket. If the total is $32, how many tickets were bought?

ANSWER _____

4 A skating rink charges $15 to enter plus $6 per hour. The entry charge changes to $18, but the hourly charge stays the same. Write the new cost rule for x hours.

ANSWER _____

5 A locker rental follows the rule total cost = 14 + 2x, where x is the number of days. What does 14 mean in this situation?

ANSWER _____

6 Each snack box holds 6 bars. Let x be the number of boxes. Write a rule for the total number of bars and state which values of x make sense.

ANSWER _____

APPLY IT Show your work

1 You order sticker packs for a club. The shop charges an $8 setup fee and $2 per pack. Let x be the number of packs. Write a cost rule, then find the cost of 6 packs.

WORK SPACE

ANSWER _____

2 Two movie plans charge different rates. Plan A costs $6 to join plus $4 per movie. Plan B costs $18 to join plus $2 per movie. Which plan costs less for 5 movies, and by how much?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Two art workshops offer session plans. Plan A costs $10 to join plus $5 per session. Plan B costs $22 to join plus $2 per session. Let x be the number of sessions. Write a cost rule for each plan. At how many sessions do they cost the same, and which plan costs less for more sessions?

WORK SPACE AND ANSWER

ANSWER KEY

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A scooter rental charges $6 to unlock a scooter and $2 per ride. Let x be the number of rides. Write a rule for the total cost.	**Total cost = 6 + 2x.**
2	A game subscription costs $8 to start and $5 per month. Use total cost = 8 + 5x to find the cost of 2 months.	**$18**
3	A school event charges a $12 booking fee plus $4 per ticket. If the total is $32, how many tickets were bought?	**5 tickets**
4	A skating rink charges $15 to enter plus $6 per hour. The entry charge changes to $18, but the hourly charge stays the same. Write the new cost rule for x hours.	**Total cost = 18 + 6x.**
5	A locker rental follows the rule total cost = 14 + 2x, where x is the number of days. What does 14 mean in this situation?	**The $14 one-time starting charge.**
6	Each snack box holds 6 bars. Let x be the number of boxes. Write a rule for the total number of bars and state which values of x make sense.	**Total bars = 6x; x is a nonnegative whole number.**

PART 2 · APPLY IT

1. **Total cost = 8 + 2x; 6 packs cost $20.** Add the setup fee to the cost per pack. Substitute 6 for x: 8 + 2(6) = 20.
2. **Plan A costs $26, and Plan B costs $28. Plan A costs $2 less.** For 5 movies, Plan A costs 6 + 4(5) = 26, while Plan B costs 18 + 2(5) = 28. Compare the totals.

CHALLENGE

Plan A: total cost = 10 + 5x. Plan B: total cost = 22 + 2x. They both cost $30 at 4 sessions. Plan B costs less for more than 4 sessions.

Accept equivalent cost rules with terms in a different order. For the snack boxes, accept x = 0, 1, 2, ... or any statement that x cannot be negative or fractional.