LESSON MAKER PRO

Relationship Switch

Represent each situation in words, a table, a graph, and an equation.

GRADE 6 · TEKS 6.6.C

6.6.C "represent a given situation using verbal descriptions, tables, graphs, and equations in the form y = kx or y = x + b."

NAME _____ DATE _____

Connect the representations

For y = kx, y is k times x and starts at zero. For y = x + b, y is b more than x. Tables and graphs must represent the same input-output pairs as the words and equation.

Worked example

A store charges $3 per notebook. Represent the rule in words and an equation.

Each notebook adds $3. The table pairs agree with y = 3x.

Cost y is 3 times notebook count x: y = 3x.

Notebooks, x	Cost ($), y
0	0
1	3
2	6

Use the supplied tables and graphs. Show calculations and explain the relationships. Label plotted points as requested.

1. Words to equation and table

A refill station charges $2 per liter, with no starting fee. Let x be liters and y cost in dollars. Describe the relationship in words, write its equation, and complete the table.

_____

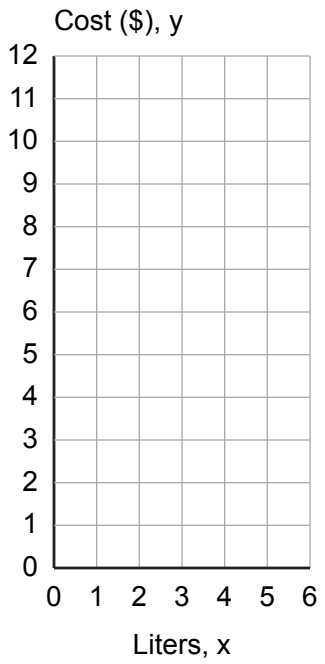
_____

_____

Liters, x	Cost ($), y
0	
1	
3	
5	

2. Table to graph

Use Task 1 to plot A, B, C, D in table order. Connect them with a straight line. Explain the meaning of C.



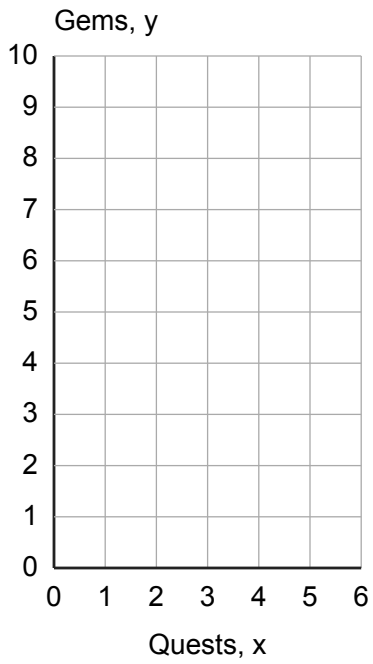
3. Add a starting amount

A game starts with 3 gems and adds 1 gem per completed quest. Let x be completed quests and y total gems. Write a verbal rule, an equation, and the missing table values.

Quests, x	Gems, y
0	
2	
4	
6	

4. Graph the second situation

Use Task 3 to plot A, B, C, D in table order. Leave points separate for whole completed quests. Explain what A shows about the starting amount.



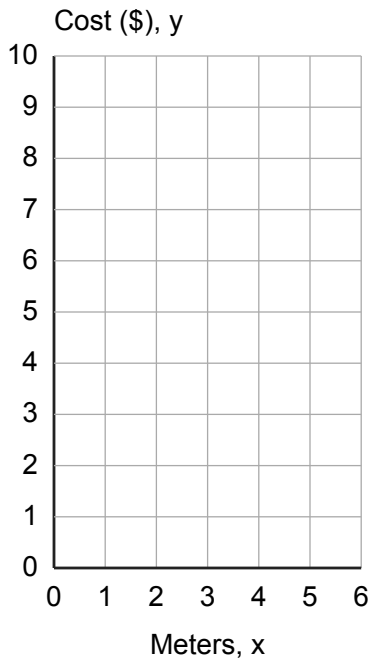
5. A third situation

A ribbon seller charges $1 per meter plus a $2 packaging fee. Let x be meters and y total cost. Describe the relationship in words, write an equation, and complete the table.

Meters, x	Cost ($), y
0	
2	
4	
6	

6. Graph and interpret

Use Task 5 to plot A, B, C, D in table order and connect them. At x = 4, how much of the total cost is for ribbon and how much is the fee?



7. Distinguish the forms

A student represents the gem situation in Task 3 with y = 3x. Use the starting value and one other table row to explain why y = x + 3 is correct instead.

ANSWER KEY

Relationship Switch

Tasks 1-2, 3-4, and 5-6 each form a complete four-representation sequence. Point letters identify table order. Refill volume and ribbon length are continuous models; completed quests are whole counts.

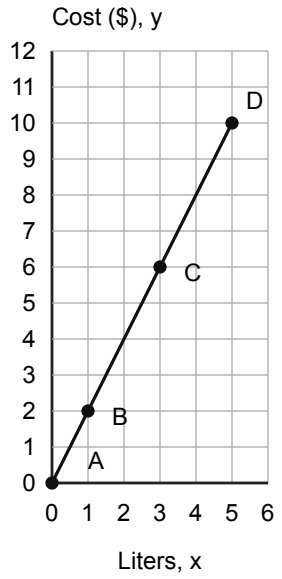
Task 1

Cost is twice the liters. y = 2x. y-values: 0, 2, 6, 10.

Liters, x	Cost ($), y
0	0
1	2
3	6
5	10

Task 2

A(0,0), B(1,2), C(3,6), D(5,10). C means 3 liters cost $6.



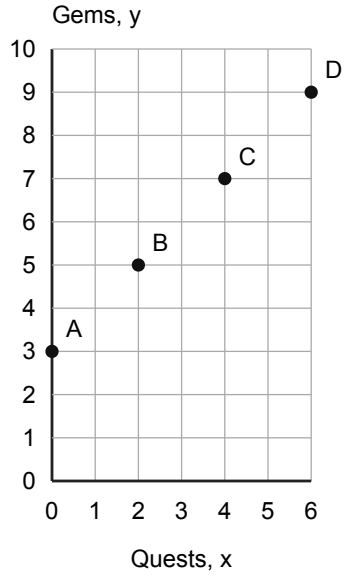
Task 3

Total gems are 3 more than completed quests. y = x + 3. y-values: 3, 5, 7, 9.

Quests, x	Gems, y
0	3
2	5
4	7
6	9

Task 4

A(0,3), B(2,5), C(4,7), D(6,9). A shows 3 gems before any quests are completed.



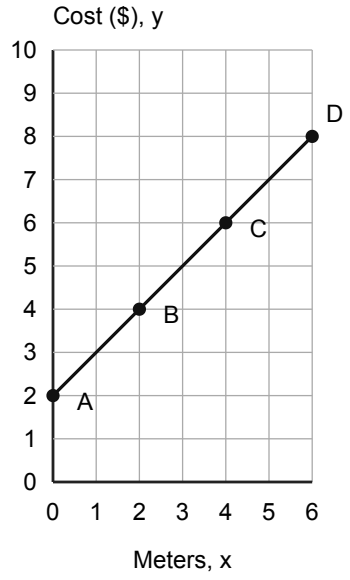
Task 5

Cost in dollars is 2 more than the number of meters. y = x + 2; y-values: 2, 4, 6, 8. Check that the representation and explanation agree with the given quantities.

Meters, x	Cost ($), y
0	2
2	4
4	6
6	8

Task 6

A(0,2), B(2,4), C(4,6), D(6,8). At 4 meters, $4 is ribbon and $2 is packaging; total $6. Check that the representation and explanation agree with the given quantities.



Task 7

At x = 0, the game has 3 gems, but 3x gives 0. At x = 2, the game has 5 gems, but 3x gives 6. x + 3 matches both.