LESSON MAKER PRO

# Function Viewpoints

*Use tables, graphs, and equations to see how values change.*

**HIGH SCHOOL · MT.CORE.ALG.FUN.3.a**

**MT.CORE.ALG.FUN.3.a** "Represent functions using tables, graphs with appropriate scales and labels, equations, and verbal situations, while using technology strategically by: Understanding that different representations highlight different aspects of functions..."

NAME _____ DATE _____

## CHOOSE YOUR VIEW

A table shows input-output pairs, while a graph helps you see how a function changes. An equation helps you calculate exact outputs. For a linear function, find the change in y for each change in x, then use a pair of values to find the starting value.

## WORKED EXAMPLE

Use the table to write an equation for y in terms of x.

| x | y |
|---|---|
| 8 | 29 |
| 9 | 32 |
| 10 | 35 |

1. As x increases by 1, y increases by 32 - 29 = 3.
2. Write y = 3x + b.
3. Use (8, 29): 29 = 3(8) + b, so b = 5.

**Answer: y = 3x + 5**

## PRACTICE 4 problems

**1** For y = 2x + 11, find y when x = 4.

**ANSWER** _____

**2** A function starts at 12 and increases by 6 each time x increases by 1. Write its equation.

**ANSWER** _____

**3** For y = 15 - 2x, state the starting value and how y changes as x increases.

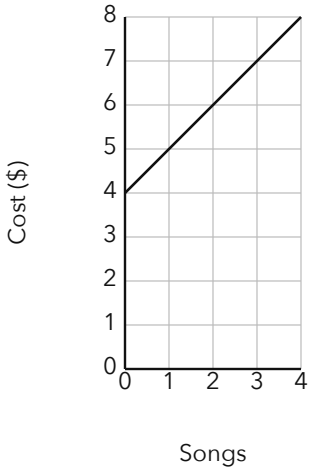
**ANSWER** _____

**4** For y = 12x + 2, which is quicker for finding y when x = 4, the equation or a graph? Find y.

**ANSWER** _____

## APPLY IT Show your work

**1** A music app charges for songs. Use the graph to write a cost equation, then find the cost of 2 songs.




**ANSWER** _____

**2** An arcade tracks total cost y for x games. Use the table to write an equation, then find the cost of 7 games.

**ARCADE COST**

| Games (x) | Cost ($) (y) |
|---|---|
| 2 | 18 |
| 4 | 30 |
| 6 | 42 |

**ANSWER** _____

## CHALLENGE One step up

Two plans cost A(x) = 2x + 18 and B(x) = 6x + 2. Which is faster for finding when they cost the same, equations or a table? Find x and explain.

WORK SPACE AND ANSWER

**ANSWER KEY**

# Function Viewpoints

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## PART 1 · PRACTICE

| # | PROBLEM | ANSWER |
|---|---|---|
| 1 | For y = 2x + 11, find y when x = 4. | **19** |
| 2 | A function starts at 12 and increases by 6 each time x increases by 1. Write its equation. | **y = 6x + 12** |
| 3 | For y = 15 - 2x, state the starting value and how y changes as x increases. | **The starting value is 15. y decreases by 2 for each increase of 1 in x.** |
| 4 | For y = 12x + 2, which is quicker for finding y when x = 4, the equation or a graph? Find y. | **The equation; y = 50.** |

## PART 2 · APPLY IT

1. **y = x + 4; 2 songs cost $6.** The graph crosses the cost axis at 4 and rises $1 per song. Substitute x = 2.
2. **y = 6x + 6; 7 games cost $48.** Cost rises $12 for 2 more games, or $6 per game. Using (2, 18) gives a starting cost of $6.

## CHALLENGE

**Equations are faster: 2x + 18 = 6x + 2, so x = 4.**

Accept equivalent equations and explanations. In the challenge, both plans cost 26 when x = 4.