LESSON MAKER PRO

Graph Story Clues

Read how quantities change

GRADE 8 · 8A.AF.J.30

8A.AF.J.30 "For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship..."

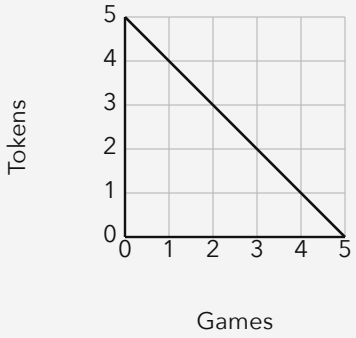
NAME _____ DATE _____

READ THE FEATURES

The point where a graph meets the vertical axis shows the starting amount. A high or low point shows a maximum or minimum, while a flat section shows no change. Use the axis labels to name the quantities and units.

WORKED EXAMPLE

The graph shows a player's token balance after each game. What do the vertical intercept and slope mean?



1. At 0 games, the graph shows 5 tokens.
2. From (0, 5) to (1, 4), the balance drops by 1 token.

Answer: The player starts with 5 tokens and loses 1 token per game.

PRACTICE 4 problems

1 For $h(t) = 16 - (t - 4)^2$, what is the maximum height, and when does it occur?

ANSWER _____

2 For $P(d) = 3 \times 2^d$, give the starting count and the factor of change each day.

ANSWER _____

3 For $C(d) = 2|d - 5| + 1$, what is the minimum value, and where does it occur?

ANSWER _____

4 A parking fee is $6 for the first 3 hours, then rises $2 per hour. When does its graph stop being flat, and what is its slope after that?

ANSWER _____

APPLY IT Show your work

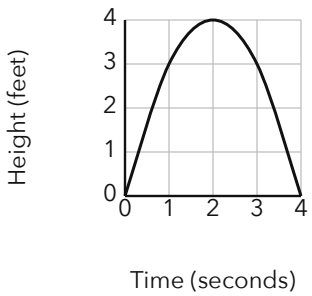
1 A phone's battery follows the table. Find its change per minute, then predict when it reaches 0%.

PHONE BATTERY

Minutes	Battery (%)
0	90
2	70
4	50
6	30

ANSWER _____

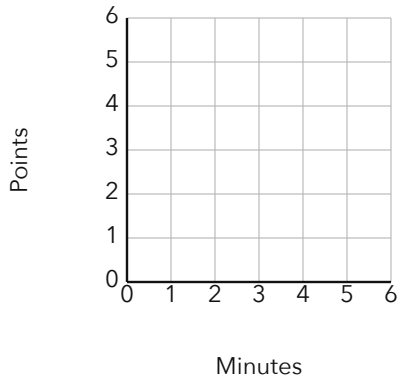
2 This graph shows a skateboarder's height during a jump. When is the height greatest, and when does the skater land?



ANSWER _____

CHALLENGE One step up

A game score starts at 2 points. It rises by 2 points each minute for 2 minutes, stays the same until minute 4, then falls by 3 points each minute until minute 6. Sketch the graph and label its turning points.



WORK SPACE AND ANSWER

ANSWER KEY

Graph Story Clues

GRADE 8 · 8A.AF.J.30

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	For $h(t) = 16 - (t - 4)^2$, what is the maximum height, and when does it occur?	**16 units at t = 4**
2	For $P(d) = 3 \times 2^d$, give the starting count and the factor of change each day.	**Starts at 3; doubles each day.**
3	For $C(d) = 2\|d - 5\| + 1$, what is the minimum value, and where does it occur?	**The minimum is 1 at d = 5.**
4	A parking fee is $6 for the first 3 hours, then rises $2 per hour. When does its graph stop being flat, and what is its slope after that?	**After 3 hours; $2 per hour**

PART 2 · APPLY IT

1. **It drops 10 percentage points per minute and reaches 0% at 9 minutes.** The battery drops 20 percentage points every 2 minutes, or 10 per minute. It takes 3 more minutes to drop from 30% to 0%.
2. **The greatest height is 4 feet at 2 seconds. The skater lands at 4 seconds.** Read the highest point for the maximum height and its time. The landing is where the curve returns to a height of 0 feet.

CHALLENGE

Connect (0, 2), (2, 6), (4, 6), and (6, 0) with straight segments.

Accept equivalent wording that names the correct quantities and units. For the challenge, accept a graph with the four stated points connected in order.