LESSON MAKER PRO

Graph Detectives

Read how each graph changes from left to right.

GRADE 8 · 8.AF.E.17

8.AF.E.17 "Analyze the relationship (increasing or decreasing, linear or non-linear) between two quantities represented in a graph."

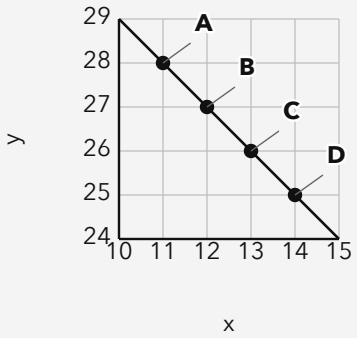
NAME _____ DATE _____

LOOK FOR CHANGE

As x increases, a graph increases if y rises and decreases if y falls. A linear graph is one straight line; a nonlinear graph is not. In Practice, imagine the listed points connected in order.

WORKED EXAMPLE

Is this graph increasing or decreasing? Is it linear or nonlinear?



1. From A to B, x rises by 1 and y falls by 1.
2. The same change repeats, making one straight line.
3. The graph falls from left to right.

Answer: Decreasing and linear.

PRACTICE 4 problems

1 Points (0,2), (1,4), (2,6), (3,8). Increasing or decreasing? Linear or nonlinear?

ANSWER _____

2 Points (0,9), (1,7), (2,5), (3,3). Increasing or decreasing? Linear or nonlinear?

ANSWER _____

3 Points (0,0), (1,1), (2,4), (3,9). Increasing or decreasing? Linear or nonlinear?

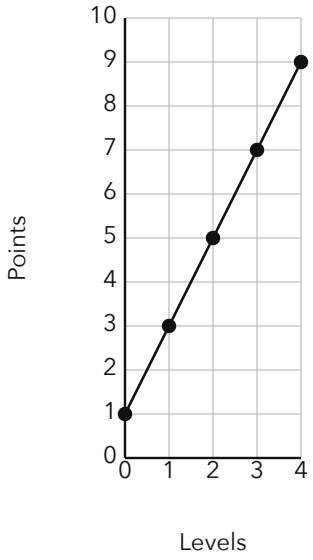
ANSWER _____

4 Points (0,16), (1,9), (2,4), (3,1). Increasing or decreasing? Linear or nonlinear?

ANSWER _____

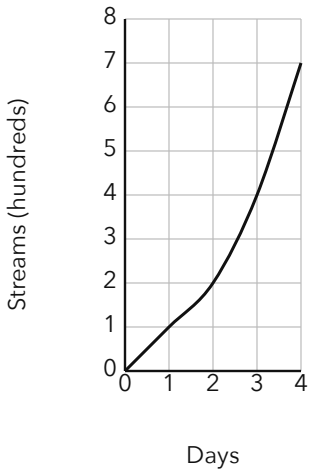
APPLY IT Show your work

1 A game tracks your total points after each level. Is the graph increasing or decreasing? Is it linear or nonlinear?



ANSWER _____

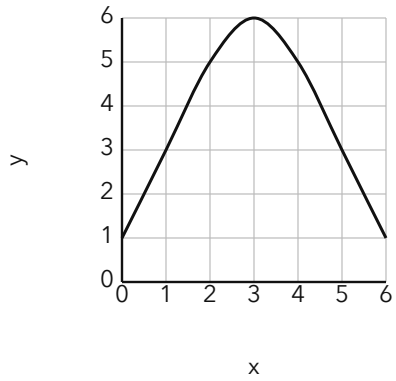
2 The graph shows total streams of a new song. Is it increasing or decreasing? Is it linear or nonlinear?



ANSWER _____

CHALLENGE One step up

At what x-value does this graph change direction? Is the whole graph linear or nonlinear? Explain.



WORK SPACE AND ANSWER

ANSWER KEY

Graph Detectives

GRADE 8 · 8.AF.E.17

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Points (0,2), (1,4), (2,6), (3,8). Increasing or decreasing? Linear or nonlinear?	**Increasing and linear.**
2	Points (0,9), (1,7), (2,5), (3,3). Increasing or decreasing? Linear or nonlinear?	**Decreasing and linear.**
3	Points (0,0), (1,1), (2,4), (3,9). Increasing or decreasing? Linear or nonlinear?	**Increasing and nonlinear.**
4	Points (0,16), (1,9), (2,4), (3,1). Increasing or decreasing? Linear or nonlinear?	**Decreasing and nonlinear.**

PART 2 · APPLY IT

1. **Increasing and linear.** The total rises by 2 points per level, so the graph is one rising straight line.
2. **Increasing and nonlinear.** The total rises as days pass, but the graph is not one straight line.

CHALLENGE

At x = 3. The graph is nonlinear because it rises and then falls, so it is not one straight line.

For Practice, judge the connected points over the interval shown. Accept either order for the two classifications.