LESSON MAKER PRO

Points or Lines?

Decide which values belong on a graph.

HIGH SCHOOL · A1.F.1.5

A1.F.1.5 "Interpret graphs as being discrete or continuous."

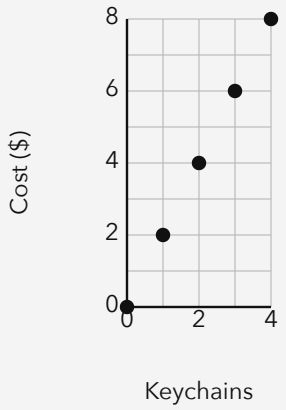
NAME _____ DATE _____

THE BIG IDEA

A discrete graph has separate points because only certain input values make sense. A continuous graph connects values because every input between them makes sense.

WORKED EXAMPLE

A shop's keychain costs are shown. Is the graph discrete or continuous?



1. The x-axis counts keychains.
2. A customer cannot buy part of a keychain.
3. Only separate points make sense.

Answer: Discrete.

PRACTICE 4 problems

1 Total cost vs. number of movie tickets bought: discrete or continuous?

ANSWER _____

2 Distance traveled vs. time spent walking: discrete or continuous?

ANSWER _____

3 Points earned vs. number of free throws made: discrete or continuous?

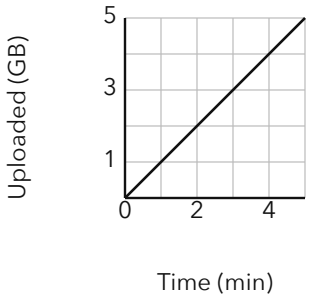
ANSWER _____

4 Water in a bathtub vs. time as it fills steadily: discrete or continuous?

ANSWER _____

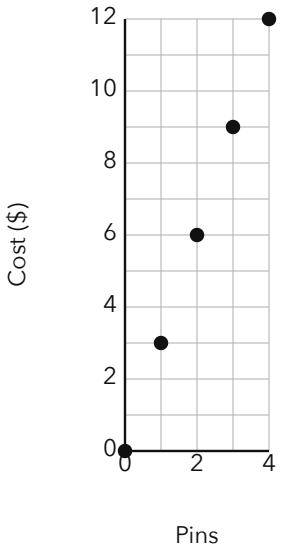
APPLY IT Show your work

1 A video uploads as shown. Is the graph discrete or continuous? How many GB upload in 1/2 minute?



ANSWER _____

2 A club sells pins at the costs shown. Is the graph discrete or continuous? Can someone spend $9 on pins?



ANSWER _____

CHALLENGE One step up

A gym charges $11 per visit. A gaming booth charges $11 per hour, including fractions of an hour. Both costs follow y = 11x. Which graph has separate points? Explain both graphs in two sentences.

WORK SPACE AND ANSWER

ANSWER KEY

Points or Lines?

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Total cost vs. number of movie tickets bought: discrete or continuous?	**Discrete.**
2	Distance traveled vs. time spent walking: discrete or continuous?	**Continuous.**
3	Points earned vs. number of free throws made: discrete or continuous?	**Discrete.**
4	Water in a bathtub vs. time as it fills steadily: discrete or continuous?	**Continuous.**

PART 2 · APPLY IT

1. **Continuous; 1/2 GB.** The connected line includes times between whole minutes. At 1/2 minute, the line shows 1/2 GB.
2. **Discrete; yes, 3 pins cost $9.** Pins come in whole numbers, so the graph has separate points. The point (3, 9) shows a $9 total.

CHALLENGE

The gym graph has separate points because visits are counted in whole numbers. The gaming booth graph is connected because a customer can pay for a fraction of an hour.

Accept "points" for discrete and "connected line" for continuous. For the challenge, accept any two sentences that correctly explain why the input values differ.