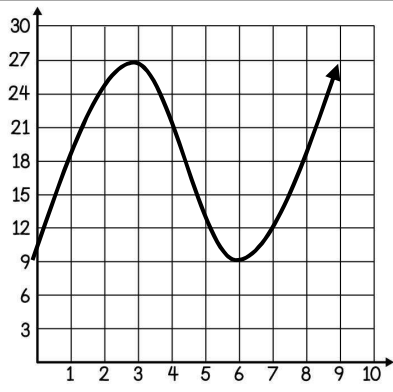


ANALYZING FUNCTIONS AND GRAPHS

A graphed function may display different properties and characteristics over certain intervals of the graph. In A and B below, describe the parts of the function over the specified intervals as “linear” or “non-linear” and “increasing” or “decreasing.”

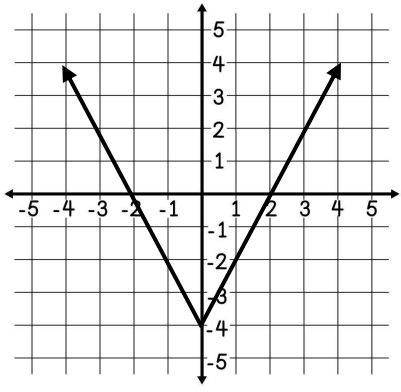
A



a. Between $x = 0$ and $x = 3$:

b. Between $x = 3$ and $x = 6$:

B

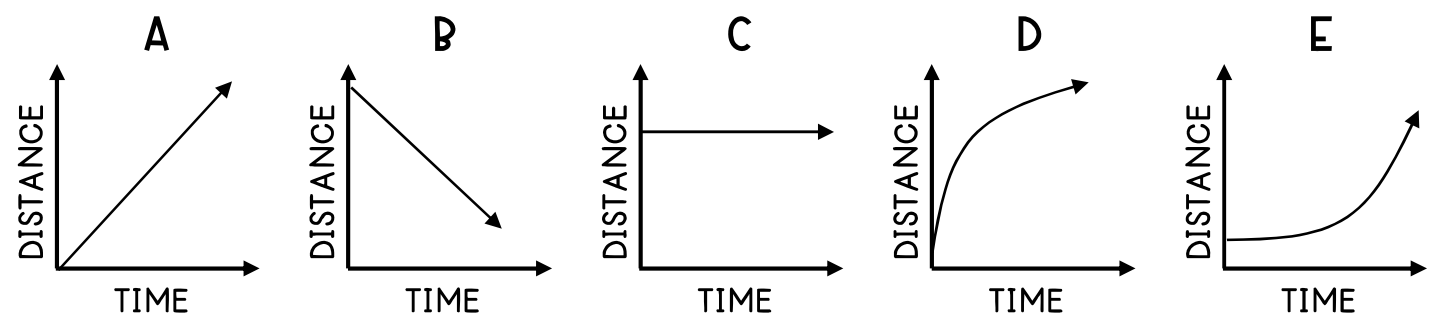


a. Between $x = -3$ and $x = 0$:

b. Between $x = 0$ and $x = 3$:

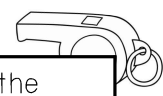
We can apply the characteristics of functions over different intervals to interpret distance vs time graphs, which show how far an object has traveled over a given amount of time.

DISTANCE VS. TIME GRAPHS

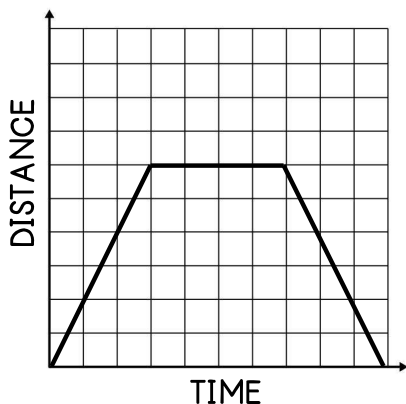


Graphs A-E above compare an object’s distance over time. Use the characteristics of the graph to write a description of what the graph represents.

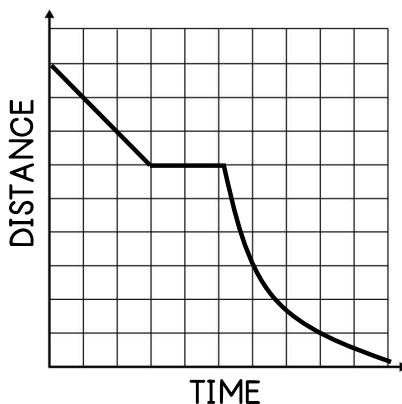
- A: _____
- B: _____
- C: _____
- D: _____
- E: _____



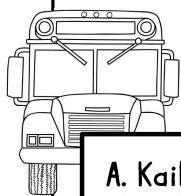
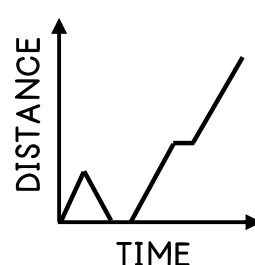
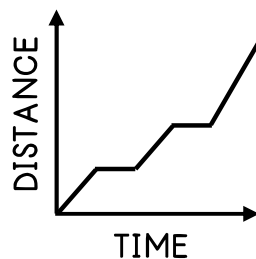
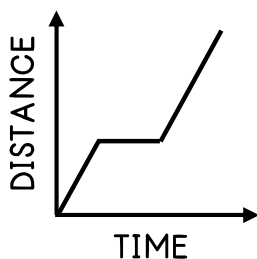
1. Tyson is driving, and the graph below represents Tyson's distance from his house. Write a brief description of Tyson's drive.



2. Mattie is walking to volleyball practice and the graph represents Mattie's distance from the gym. Write a brief description of Mattie's walk.



3. The graphs below represent the distances of three students from their houses. Write the letter of each description over the graph it matches.



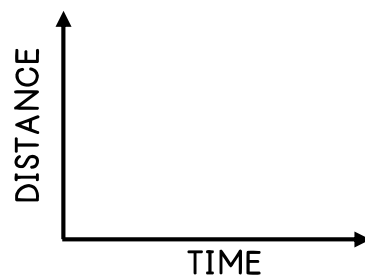
A. Kailey got on the bus at her house. The bus made two more stops before it arrived at the school.

B. Brennan and his dad left for school. They got stopped at the train tracks before they were able to continue to school.

C. Cameron left for school but had to go back home to get his English homework. He then drove to school with only one stop at a stoplight.

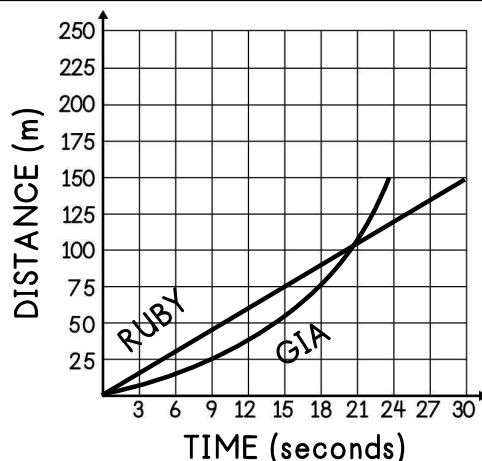
4. Sketch a distance vs. time graph showing Adam's distance from his house. Label each segment.

- A. Adam left his friend Brody's house and started walking home.
- B. Adam realized he left his phone at Brody's, so he went back to Brody's.
- C. Adam left Brody's a second time and started to walk home.
- D. Adam stopped halfway to talk to a friend he passed.
- E. Adam then quickly ran home to make it in time for dinner.



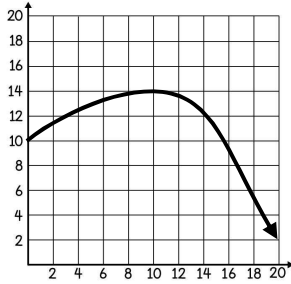
5. Ruby and Gia raced each other in a 150-meter sprint. The graph shows the distance of each runner over time.

- a. Who won the race, and how do you know?
- b. Was the same runner in the lead the entire race? Explain.
- c. How did Ruby's pace differ from Gia's?



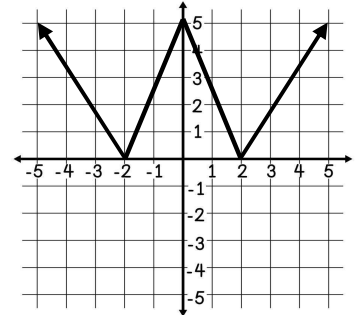
ANALYZING FUNCTIONS AND GRAPHS

1. Which of the following best describes the graph of the function when x is between 0 and 10?

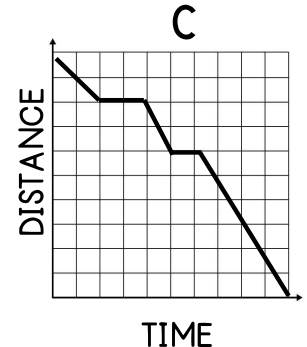
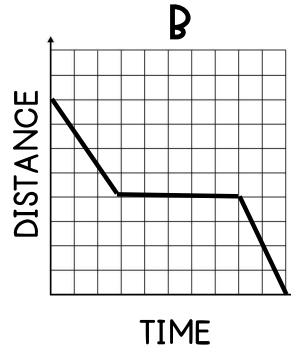
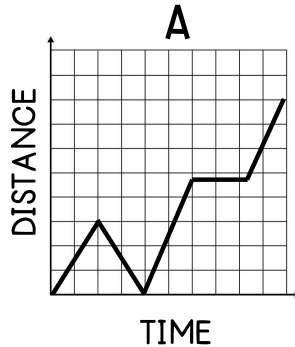


- a. Linear and increasing
- b. Linear and decreasing
- c. Non-linear and increasing
- d. Non-linear and decreasing

2. Describe the characteristics of the function's graph when x is between -2 and 0.



The graphs below represent three different people's distances from a bowling alley. Match the letter of each graph to its description below.



- _____ 3. Blake left his house to drive to the bowling alley. He stopped to pick up two friends on the way and then ended at the bowling alley.
- _____ 4. Paula left the bowling alley to drive home. She realized that she left her purse at the bowling alley so she went back to pick it up. She then drove back home, stopping at one light on the way.
- _____ 5. Record the letter of the unused graph, and write your own scenario to match the graph:

Nate and his sister Myla are walking home from school. The graph shows their distances from their house. For the last 40 yards of the walk, Nate and Myla race home.

- 6. Who reached the house first? Explain.
- 7. Describe the difference in each sibling's pace.

