

Lesson 4 Interpreting and Sketching Graphs

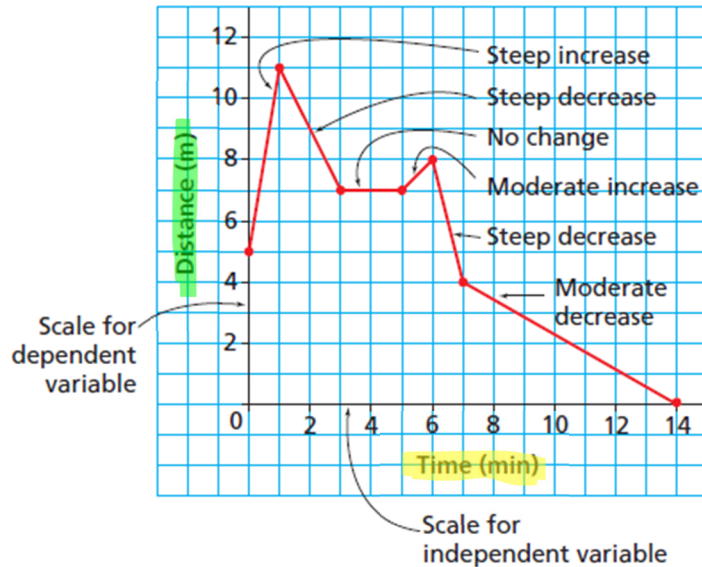
Graphs are a visual way to represent the relationship between two variables. Graphs can be used to represent all relations, including functions.

If given a graph, we can inspect and interpret it (i.e. figure out what it means or what the relationship is between the dependent and independent variables). We should be able to answer questions about what the graph is showing, to demonstrate our understanding.

The **independent variable** is always placed on the **x-axis** (**horizontal axis**) of the graph. The **dependent variable** is always placed on the **y-axis** (**vertical axis**).

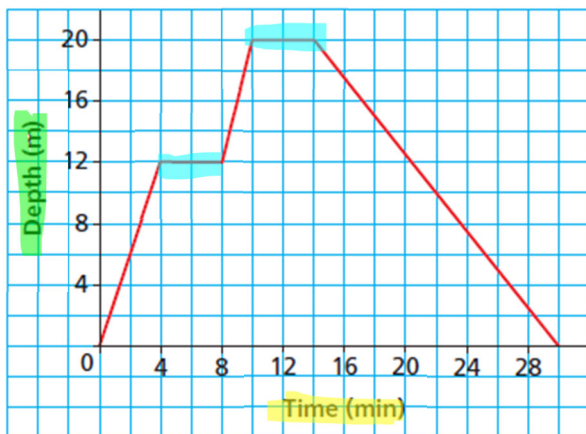
If we are given a scenario, we could sketch out what we think the graph might look like.

The properties of a graph can provide information about a given situation.



Example 1: This graph shows the depth of a scuba diver as a function of time.

A Scuba Diver's Dive



a) How many minutes did the dive last?

30 minutes

b) At what times did the diver stop her decent?

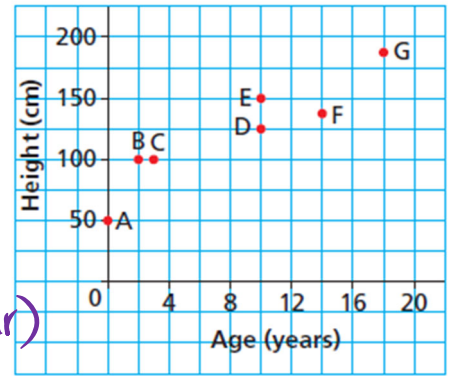
@ 4 mins (until 8 mins)

@ 10 mins (until 14 mins)

c) What was the greatest depth the diver reached? For how many minutes was the diver at that depth?

20m for 4 minutes

Ages and Heights of People



Example 2: Each point on the graph represents a person.

a) Which person is the oldest? What is his or her age?

G 18 years

b) Which person is the youngest? What is his or her age?

A newborn (less than 1 year)

c) Which two people have the same height? What is this height?

B/C 100 cm

d) Which two people have the same age? What is this age?

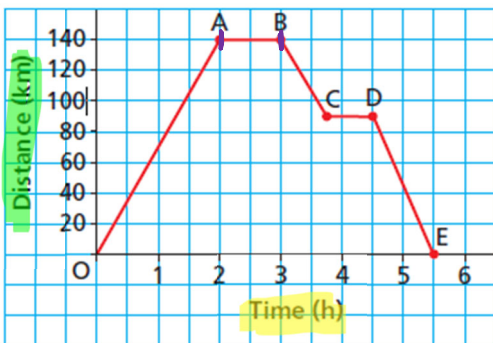
D/E 10 years

e) Which of person B or C is taller for her or his age?

B (100 cm @ 2 years)

Example 3: The following represents a day trip from Athabasca to Kikino in Alberta a distance of approximately 140 km. Describe the journey for each segment of the trip.

Day Trip from Athabasca to Kikino



OA: It took 2 hrs to travel 140 km to Kikino.

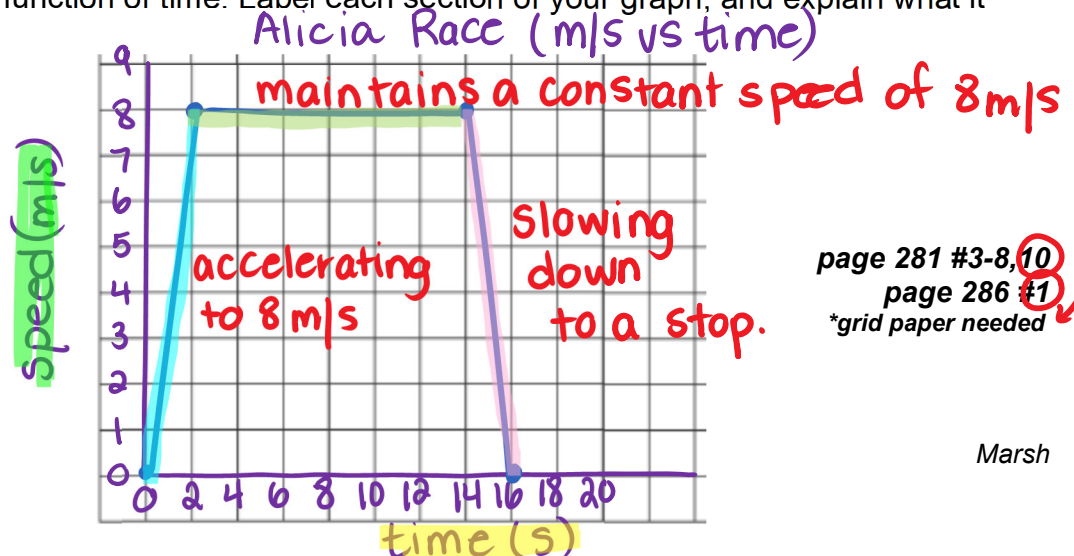
AB: They spent 1 hr in Kikino.

BC: Driving back to Athabasca, drove 50 km in 45 minutes. (3/4 hour)

CD: stopped for 45 mins.

DE: Arrived back in Athabasca (90 km in 1 hr)

Example 3: At the beginning of a race, Alicia took 2 s to reach a speed of 8 m/s. She ran at approximately 8 m/s for 12 s, then slowed down to a stop in 2 s. Sketch a graph of speed as a function of time. Label each section of your graph, and explain what it represents.



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