



## Concept: Reading and Sketching Graphs

Name:


### PART A: COMPUTER COMPONENT

**Instructions:** In  follow the **Content Menu** path:

**Graphing > Reading and Sketching Graphs**

-  Work through all Sub Lessons of the following Lessons **in order**:
- *Graphs Without a Scale*
  - *Graphs With a Scale*

**NOTE:** You will not be finishing the entire section before stopping to complete some **OFF COMPUTER EXERCISES**.

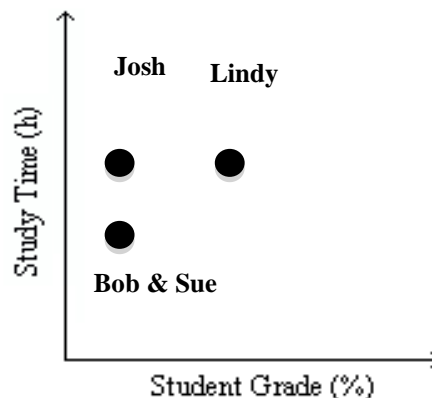
 As you work through **PART A: COMPUTER COMPONENT**, make notes in your notebook/math journal.

When you reach the end of the lesson *Graphs With a Scale*, leave the computer and move on to **PART A: OFF COMPUTER EXERCISES** below.

### PART A: OFF COMPUTER EXERCISES

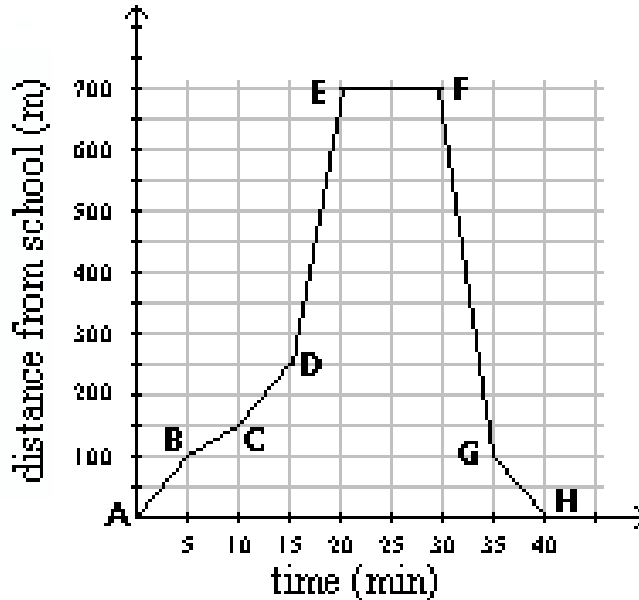
1. For each of the following, place points on a graph to represent the relative position of the student's grade and the amount of time which he or she studied.

- (a) Josh achieved the same grade as Sue, although Josh studied longer.
- (b) Lindy and Josh studied for the same amount of time, but Lindy achieved a better grade.
- (c) Bob and Sue studied for the same time and ended up with the same grade.



2. Sebastian walked from home to the hardware store to pick up batteries for his CD player. He was told to be back in 40 minutes.

Examine the graph below and describe Sebastian's progress by answering the questions that follow.



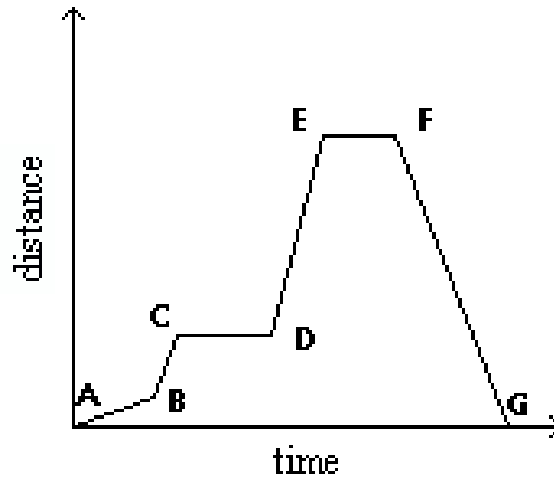
- (a) What is the slope of the line segment AB? *AB slope* :  $\frac{100}{5} = 20/\text{min}$
- (b) In the first 5 minutes, how far does Sebastian walk? *He walks 100 m in the first 5 mins.*
- (c) How fast does Sebastian walk in the first 5 minutes?  
*Sebastian walks 100 m at*  

$$\frac{100}{5} = 20/\text{min}$$
- (d) What is the slope of the line segment DE? What does this mean?  
*DE slope* =  

$$\frac{750 - 250}{20 - 15} = \frac{450}{5} = 90\text{m}/\text{min}$$
- (e) When does Sebastian reach the store? *Sebastian reaches the store in 20 minutes.*
- (f) How long is Sebastian at the store? *He is at the store for 20 minutes.*
- (g) How long does it take Sebastian to get home from the store?  
*It takes Sebastian 10 minutes to get home.*
- (h) How does his speed from F to G compare with his speed from G to H?  
*From F to G, he is moving much faster than G to H.*

- (i) Write a short story, *in your notebook/journal*, that describes Sebastian's trip.  
 (Answers will vary)

3. You are riding your bike along a bike path. *The following graph represents information about time, distance and speed.*



*Explain each part of the graph.*

From A to B *You are biking at a constant speed along a level road.*

From B to C *You ride at a faster rate.*

From C to D *You are resting.*

From D to E *You ride fast again. (like B-C)*

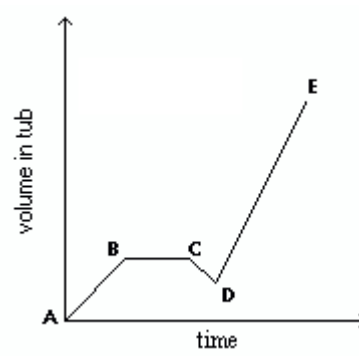
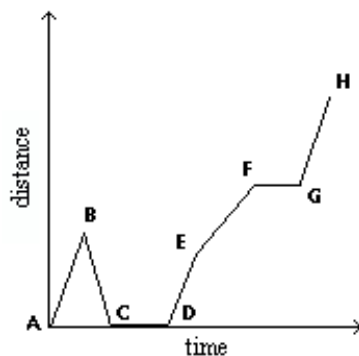
From E to F *You rest again.*

From F to G *You head home at a consistent rate.*

4. Write a short story (no more than  $\frac{1}{2}$  page each), *in your notebook/math journal*, to explain each of the following situations:

(a) Bobby's Trip Home From the Mall

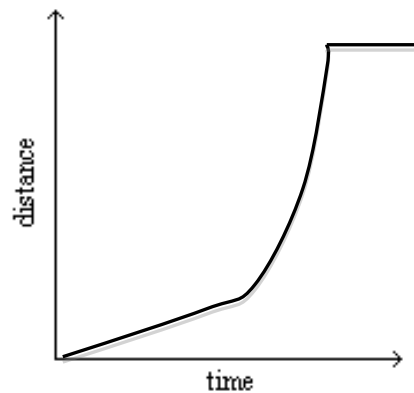
(b) Filling the Bathtub



Trip Home From the Mall	Filling the Bathtub
<p><i>Bobby leaves the mall (AB) but at B, he realizes that he has forgotten something and returns (BC). He is at the mall for a time (CD) and then leaves at a fast pace (DE). He slows down but keeps moving (EF). Finally he takes a break (FG) before quickly resuming his trip home at a fast pace.</i></p>	<p><i>Taps are turned on and the tub begins to fill (AB). The taps are turned off for time (BC). The plug is pulled for a short period before it is re-inserted. The taps are then turned on at a high rate.</i></p>

5. Draw the graph that represents the following:

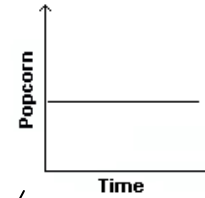
- A log floats in a slow, steadily moving stream.
- It goes through 2 sets of rapids; the second is faster than the first.
- It then goes over a waterfall into a lake.



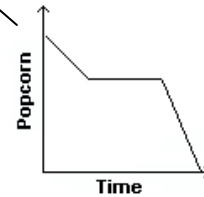
6. Match each situation to one of the graphs.

*Use a ruler to draw a straight line from the situation to the correct graph.*

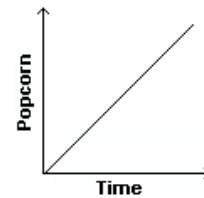
(a) Melissa eats her popcorn for a short time.  
She stops eating to speak to her friend Sam.  
Then she finishes eating her popcorn very quickly.



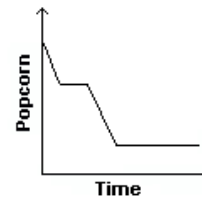
(b) Melissa makes popcorn at a constant rate before the movie



(c) Melissa does not eat any of the popcorn she has made.

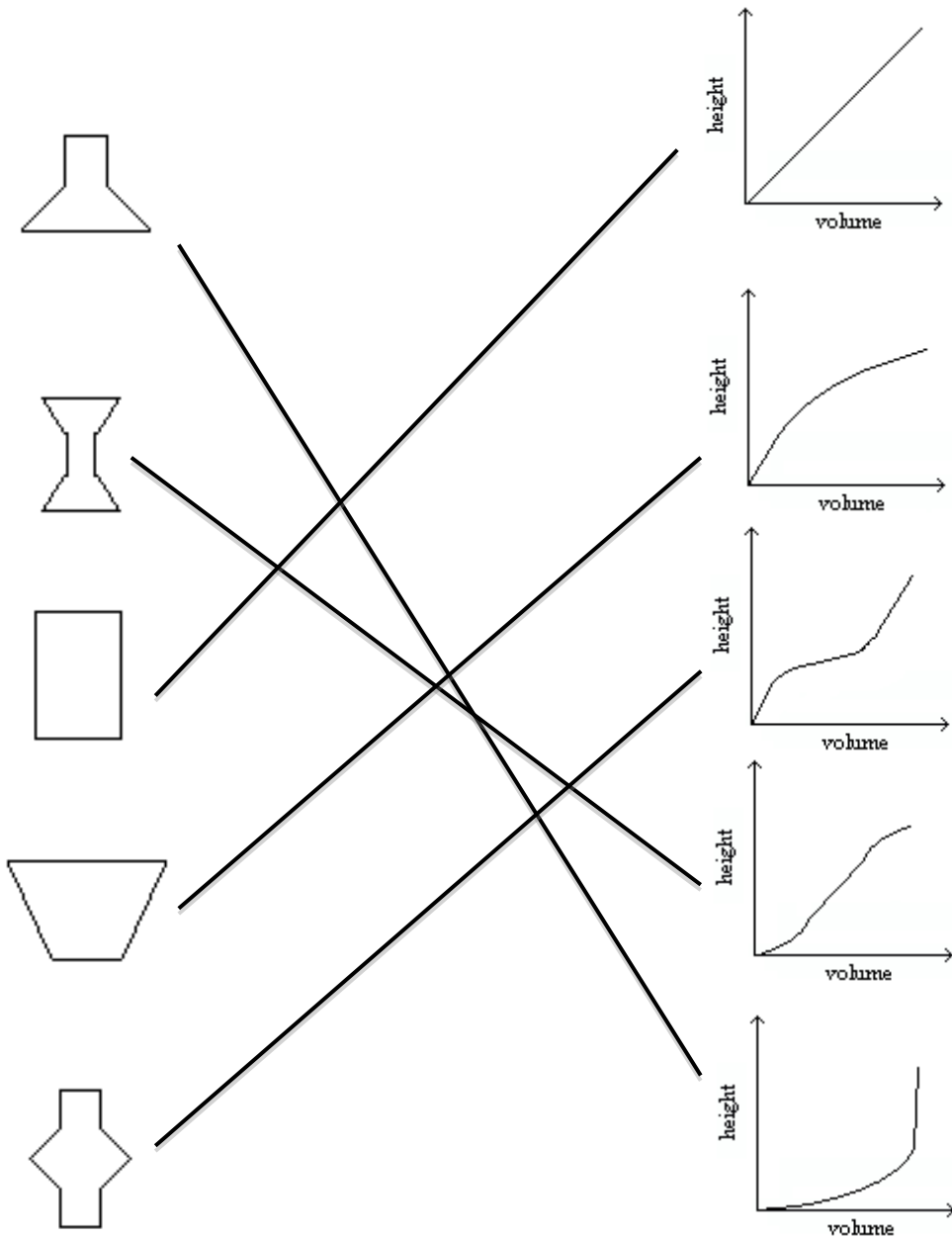


(d) Melissa eats her popcorn quickly for a short time.  
She stops eating during the intermission of the movie.  
She begins eating again when the movie starts, but she  
does not finish the popcorn because she is feeling full.

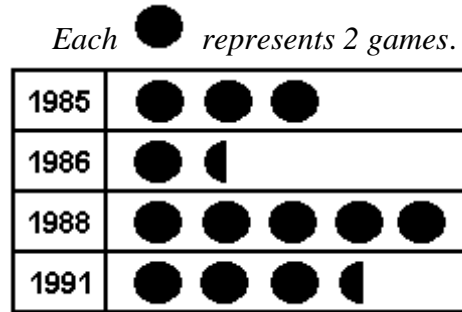


7. Imagine that you are pouring cola into each of these glasses at a constant rate. Match each glass to the graph that best represents the filling process. *Use a ruler to draw a straight line from the situation to the correct graph.*

Note: Be prepared to justify your solutions to a classmate.

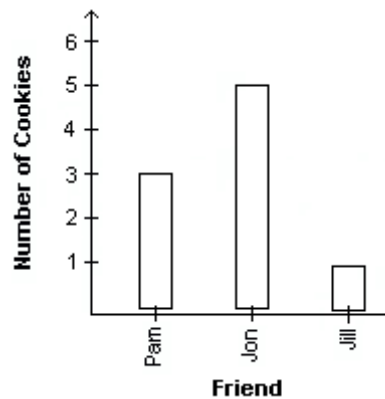


8. The graph below represents the number of tennis games Sally won each year.



- (a) What type of graph is this? *This is a pictograph.*
- (b) In which year did Sally win 6 games? *Sally won six games in 1985.*
- (c) How many games did she win in 1991? *Sally won 7 games in 1991*
- (d) How many more games did she win in 1988 than in 1986? *Sally won 7 more games.*

9. The graph below represents the number of cookies each friend ate.



- (a) What type of graph is this? *This is a bar graph.*
- (b) Which friend ate the greatest number of cookies? *Jon ate the greatest number of cookies.*
- (c) How many more cookies did Jon eat than Jill? *Jon ate 4 more countries than Jill.*
- (d) How many cookies did the friends eat altogether? *The friends ate 9 cookies altogether.*

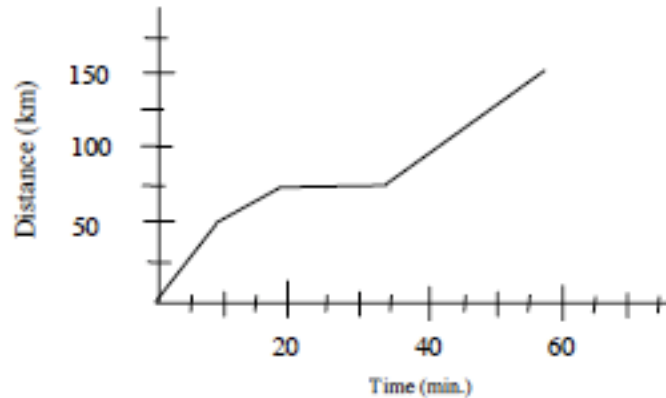
10. On the graph below, the horizontal scale (time) ranges from 0-60 minutes, and the vertical scale (distance) ranges from 0-150 km.

(a) Indicate the scale on the graph.

(b) Draw the graph that represents the following information:

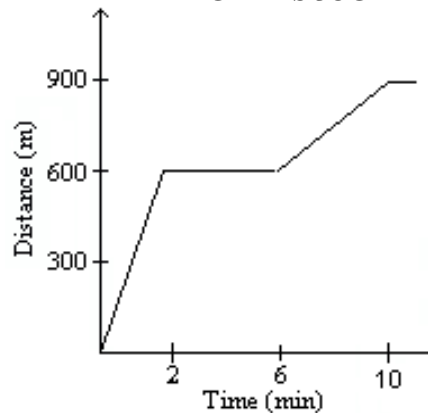
- A racecar driver begins the race at time 0 and distance 0 km, then in a matter of 10 minutes, she travels 50 km at a constant rate.
- She slows down at a constant rate and travels 25km in the next 10 minutes.
- From 20 minutes to 30 minutes, the car needs a new tire, so the car is in the pit stop, not moving.
- Then, the car travels 75 km in the remaining time.

**A Race Car's Trip**



11. Demonstrate your interpretation of the graph below, by answering the questions that follow.

**GARY'S JOG**



(a) What type of graph is this? ***This is a line graph.***

(b) How long does Gary travel at 5 m/s? ***Gary travels 600 meters.***



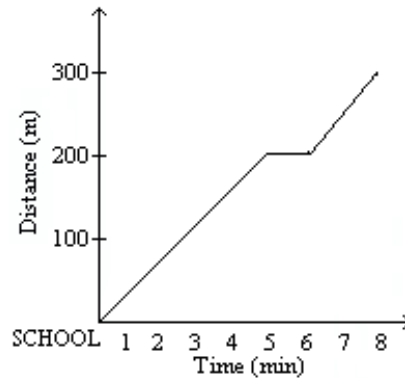
(c) Between what times is Gary stopped? ***He stopped between 2 and 6 minutes.***

(d) At what rates does Gary jog between the 6 and 10-minute mark?

***300 m are covered in 4 seconds.***

$$\frac{300}{4} = 75m/sec.s$$

12. Analyze and demonstrate your interpretation of the following graph by filling in the blanks below.



***Jim begins at school.***

(a) It takes Jim 3 minutes to travel the first 100 m.

(b) The second 100 m is completed in 2 minutes.

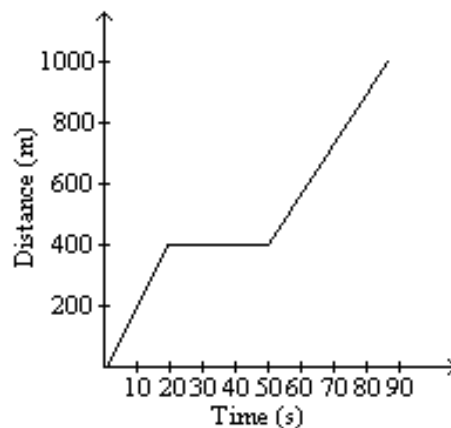
(c) At what rate does Jim skate between 2 min and 5 min?  $\frac{120}{3} = 60m/min$

(d) How far does Jim travel between 5 min and 6 min? ***0 meters/ he's resting.***

(e) How fast does Jim travel between 6 min and 8 min? ***100 meters***

13. The graph below represents Mr. Santiago's drive to the ballpark.

Analyze the graph and fill in the blanks that follow.



- (a) Mr. Santiago starts at 0 meters.
- (b) He stops at 20 seconds.
- (c) So far he has traveled 400 meters.
- (d) Therefore, thus far he has traveled 20 m/s.  
 (Recall use meters to calculate m/s)  
 seconds
- (e) Explain what happens between 20 and 90 seconds. ***He stops for 30 seconds, then begins to move again at a slightly lower rate.***

14. Sketch the situation below on the graph at the right.

- Cheryl begins jogging at 0 seconds.  
 (so far she has traveled 0 meters)
- She jogs 20m in the first 30s at a constant rate.
- Cheryl stops to tie her shoelace between 30s and 45s.
- She jogs 20m in the next 30s at a constant rate.
- She jogs  $\frac{1}{3}$  m/s at a constant rate for the next 15 seconds.

