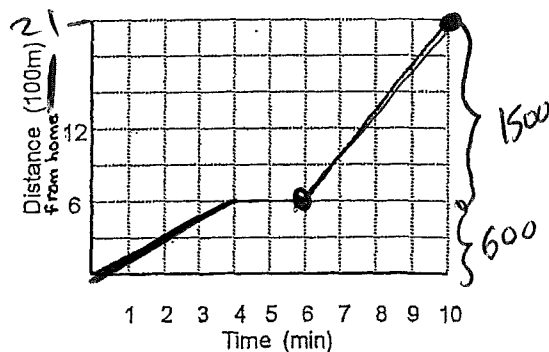# 5.3: INTERPRETING GRAPHICAL MODELS _____

EXAMPLE 1:

This graph shows the relationship between distance and time for a cyclist going from school to the local arena. Distance is being measured from the cyclist's point of departure, the school.

a) Complete the following chart:

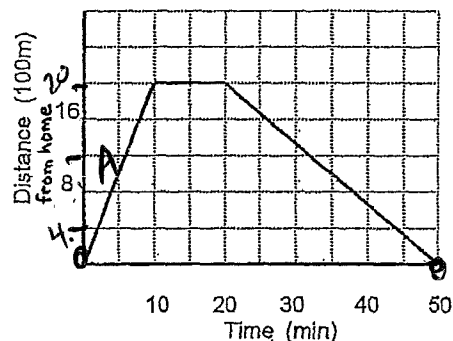| Time (min.)	Change in Distance	Interpretation
0 - 4	600 m	He went away from school covering 600m in 4mins (Speed = $\frac{600}{4}$ = 150 m/min)
4 - 6	0 m	He is taking rest. Speed = 0 m/min. for 2mins
6 - 10	1500 m	He went away from school. He reached arena (arked 2100 m from school.

b) Write a story to match the graph.

Time = 4 mins   Distance = 1500 m

$$Speed = \frac{1500}{4} = 375 \text{m/min}$$

EXAMPLE 2:

This graph shows the relationship between distance and time for a student leaving the house and going for a walk.

a) Complete the following chart.

Time (min.)	Change in Distance	Interpretation
0 - 10	2000 m	He went away from home.
10 - 20	0 m	Took rest
20 - 50	-2000 m	He walked back to home.

b) Write a story that would illustrate this distance – time graph.

A: He went away for a walk at a constant speed. for 10 mins covering 2000m. Speed = $\frac{2000}{10}$ = 200 m/min

B: He took rest for 10m. (Speed = 0 m/min)

C: He walked towards home for 30 mins covering 2000 m (speed = $\frac{2000}{30}$ = 66.67 m/min)

EXAMPLE 3:

George lives 400 m from a video store. He walks to the store but along the way he stops for 2 min to watch a baseball game in the neighbourhood park.

He continues to walk to the video store, chooses and rents a movie, and then he runs straight home to watch it.
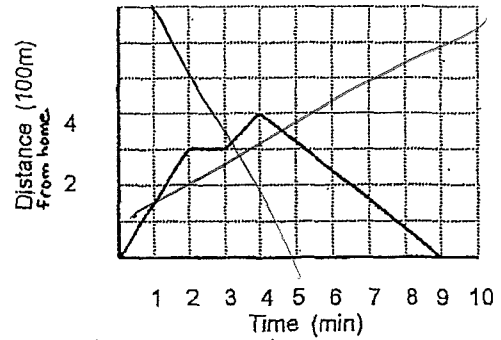
a) Which of these graphs is the better illustration of George's whole trip? 2ⁿᵈ graph.

b) Rewrite the story of George's trip for the other graph.

George walks to the store for 2 mins covering 300 m. He took a break for a minute. He then walks for 100m for a minute then ran home taking 5 minutes covering 400 m.
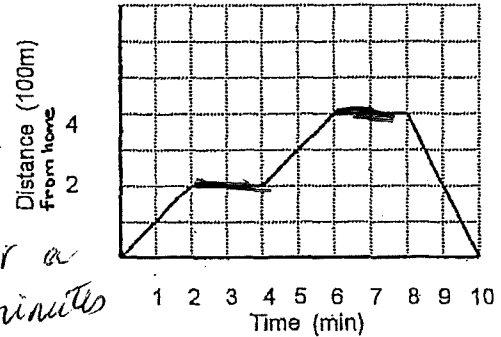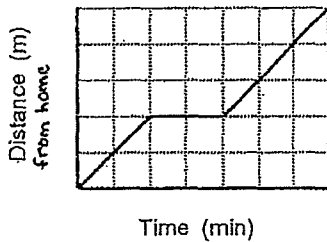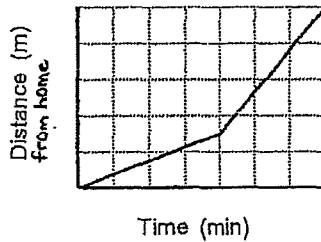
EXAMPLE 4:

Several students live in the same apartment building and ride their bikes to school each morning.

Look at these three graphs and read the two stories.
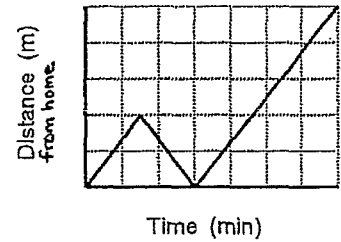
A: B: C:

Ken: I started off to school but remembered that I had left my homework on the table. I rode back home, picked the homework up, then went quickly to school. C

Jim: On the way to school I met Marty. I stopped to talk to him for a few minutes, then rode quickly to school. A

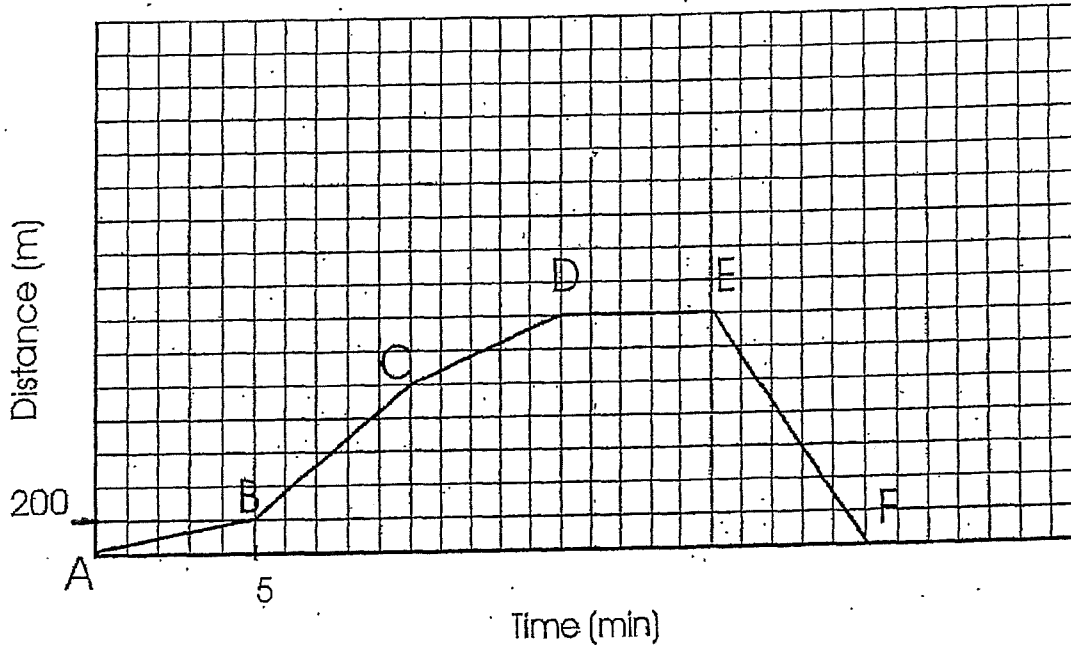a) Which story goes with which graph?

b) Write a story that Rob might have told, if his trip were illustrated on the remaining graph.

B: He walked at a constant rate. Realizing he was late for school, sped up to get to school on time.

5.4.1: A Runner's Run

Chris runs each day as part of his daily exercise. The graph shows his distance from home as he runs his route.

Write a story to describe Chris' run today. Be sure to include the following for EACH segment of the graph:
- direction of the motion during the segment
- distance travelled during the segment
- total time taken for the segment
- speed for the segment
- whether the motion is constant or non-constant during the segment
- a reason/story for each segment

A-B: Chris jogs slowly for 5 mins covering 500m at a constant speed of 40m/min. (He is walking away.)

B-C: Chris speeds up for 5 mins covering 800m at a speed of 160m/min (still away from home).

C-D: Chris got tired and slowed down. Still ran, at a constant speed (away from home). covering 400m in 5 mins (at a speed of 80 m/min)

D-E: Chris got really tired and took a break for 5 minutes. - speed = 0 m/min

E-F Chris forgot he had to turn off the stove. So he sprinted home covering 1400m in 5 min at a constant speed of 280 m/min