

Picture This Graph

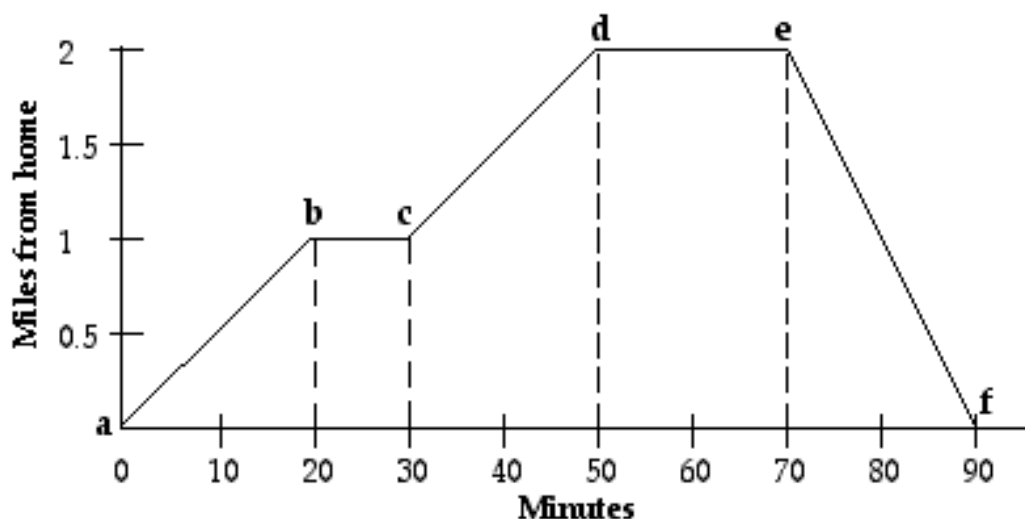
This task assesses your ability to **communicate mathematically**.

STUDENTS:

Your response will be scored using the **Mathematical Communication Scoring Guide**. Show your best work by:

- explaining as many details as possible;
- demonstrating interpretations and understandings in a clear and organized manner;
- representing mathematical information and ideas in an effective format;
- being clear and complete.

Carla's exercise program includes a combination of walking and jogging. The graph below shows one day's activity.



Using mathematical notation, mathematical vocabulary, formulas and/or equations explain as many details as you can about Carla's entire trip. Be sure to include comparisons between different parts of her program.

Picture This Graph continued ...

Reflections

My response is good because I ...

- explained all details;
- demonstrated interpretations and understandings in a clear and organized manner;
- effectively represented mathematical information and ideas;
- was clear and complete.

'99 Math Power Scoring Guide: Picture The Graph • Communicates Understandings • Grade 10

	Criteria	4 Points <i>very fine work</i>	3 Points <i>fully acceptable work</i>	2 Points <i>partially acceptable</i>	1 Point <i>response attempted</i>	0 Points <i>none or insufficient</i>
Interprets	<ul style="list-style-type: none"> Are details given for each section of the graph? 	<ul style="list-style-type: none"> only correct details are given for at least 4 sections of the graph; AND 	<ul style="list-style-type: none"> correct details are given for at least 3 sections of the graph; AND 	<ul style="list-style-type: none"> details are given for at least 2 sections of the graph but may contain flaws; AND 	<ul style="list-style-type: none"> details are given for at least 1 section of the graph but may contain flaws; AND 	<ul style="list-style-type: none"> no relevant details are given; OR
Expresses Ideas	<ul style="list-style-type: none"> Are the different slopes explained using mathematical notation, mathematical vocabulary, formulas, etc.? 	<ul style="list-style-type: none"> uses correct mathematical vocabulary and notation to explain why there are 3 different slopes; AND 	<ul style="list-style-type: none"> uses correct mathematical vocabulary and notation to explain why at least 2 of the 3 slopes are different (one of the explanations must include a horizontal segment.); AND 	<ul style="list-style-type: none"> explains why at least 1 of the 3 slopes is different but may contain irrelevant details; AND 	<ul style="list-style-type: none"> may or may not include an explanation for why any of the slopes are different; AND 	<ul style="list-style-type: none"> no attempt to explain why the slopes are different; OR
Compares	<ul style="list-style-type: none"> Are comparisons between the sections included? (faster, slower, same, longer, shorter, etc.) 	<ul style="list-style-type: none"> at least two accurate comparisons are given between parts of the exercise program. 	<ul style="list-style-type: none"> at least one accurate comparison is given between parts of the exercise program. 	<ul style="list-style-type: none"> at least one comparison is attempted between parts of the exercise program but may or may not be correct. 	<ul style="list-style-type: none"> no comparison between parts of the exercise program is attempted. 	<ul style="list-style-type: none"> no comparison between parts of the exercise program is attempted.

Details of graph:

- Segment **ab** moving 1 mile from the house in 20 minutes; speed is 3 mph;
- Segment **bc** maintaining the distance of 1 mile from the house (please note, multiple ways to maintain constant distance of 1 mile) for 10 minutes; speed if resting is 0 mph;
- Segment **cd** moving 1 more mile from the house in 20 minutes; speed is 3 mph;
- Segment **de** maintaining the distance 2 miles from the house; speed if resting is 0 mph; and
- Segment **ef** returns 2 miles to the house in 20 minutes; speed is 6 mph.