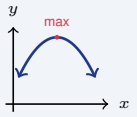
Interpreting Graphs of Functions

Name: _____	Date: _____	Score: _____ / 18

Quick Review and Helpful Hints

A graph tells a story. Where it *rises* left to right, the function is increasing; where it *falls*, it is decreasing; *flat* means constant. The y-intercept is the starting value, and the highest or lowest points are the maximum or minimum.

▷ **Example:** A graph rises from left to right. Is the function increasing or decreasing? **Work:** As x gets larger, y gets larger too, so the graph is going up. ★ **Answer:** Increasing



Rises, peaks (max), then falls.

Practice Problems

Answer each question about a graph.

1. Graph rises left-to-right: increasing or decreasing? _____
2. Graph falls left-to-right: which? _____
3. A flat horizontal graph is? _____
4. Where a graph crosses the y-axis is the? _____
5. The highest point of a graph is the? _____
6. The lowest point is the? _____
7. Where a graph crosses the x-axis, $y =$? _____
8. A line with positive slope is? _____
9. A line with negative slope is? _____
10. The value of a function at $x = 0$ is its? _____
11. A U-shaped parabola opening up has a? _____
12. A graph that peaks then falls has a? _____
13. On a distance-time graph, a steeper line means? _____
14. Where a profit graph crosses zero, profit $=$? _____

Word Problems

15. A runner's distance-time graph is flat for a while. What is the runner doing? _____
16. A temperature graph rises all morning. The temperature is doing what? _____
17. A ball's height graph goes up then down. What is the top point called? _____
18. Where a profit graph crosses zero (break-even), the profit equals what? _____

Answer Keys

1. Increasing	**7.** 0	**13.** faster
2. Decreasing	**8.** Increasing	**14.** 0
3. Constant	**9.** Decreasing	**15.** resting
4. y-intercept	**10.** y-intercept	**16.** Increasing
5. maximum	**11.** minimum	**17.** maximum
6. minimum	**12.** maximum	**18.** 0

Step-by-Step Explanations

1. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Rising means y grows as x grows: increasing. So the final answer is Increasing.

2. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Falling means y drops as x grows: decreasing. So the final answer is Decreasing.

3. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is No change in height means constant. So the final answer is Constant.

4. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is That crossing point is the y-intercept. So the final answer is y-intercept.

5. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The peak is the maximum. So the final answer is maximum.

6. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The bottom is the minimum. So the final answer is minimum.

7. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is On the x-axis the height is 0. So the final answer is 0.

8. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Positive slope goes up: increasing. So the final answer is Increasing.

9. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Negative slope goes down: decreasing. So the final answer is Decreasing.

10. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is At $x = 0$ the output is the y-intercept. So the final answer is y-intercept.

11. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is An upward U has a lowest point: minimum. So the final answer is minimum.

12. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is A peak before falling is a maximum. So the final answer is maximum.

13. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is A steeper line covers distance faster. So the final answer is faster.

14. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is On the x-axis the value is 0. So the final answer is 0.

15. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is A flat distance graph means no motion: resting. So the final answer is resting.

16. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Rising temperature means increasing. So the final answer is Increasing.

17. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The top of the path is the maximum. So the final answer is maximum.

18. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Break-even means profit $= 0$. So the final answer is 0.

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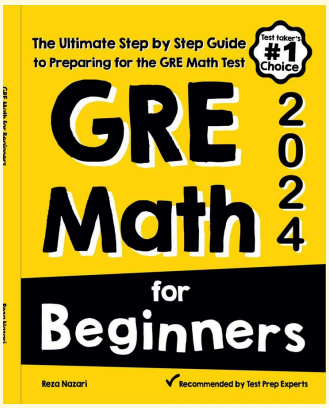

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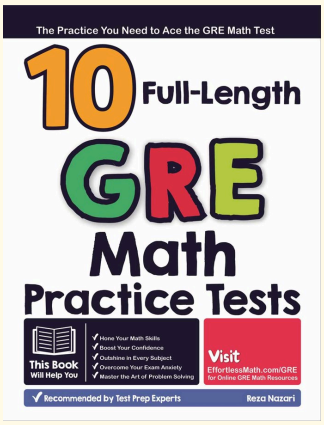

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