

MOMENTUM MATH LEVEL H



TABLE OF CONTENTS

Unit 4 – Functions and Graphing

Lesson A: The Coordinate Grid	301
<i>How can you plot points on a coordinate grid?</i>	
Lesson B: Equations	311
<i>How is an equation related to a rule?</i>	
Lesson C: Functions	321
<i>What is a function?</i>	
Lesson D: Rate of Change	331
<i>What is rate of change?</i>	
Lesson E: Understanding Slope	341
<i>What is the slope of a line?</i>	
Lesson F: Computing Slope	351
<i>How can you use two points to compute the slope of a line?</i>	
Lesson G: Graphing Linear Functions Using Slope	361
<i>What does the graph of a linear function in the form $y = mx$ look like?</i>	
Lesson H: Graphing Linear Functions Using Intercepts	371
<i>How does changing the y-intercept of a linear function affect its graph?</i>	
Lesson I: Applications of Linear Functions	381
<i>When a linear function describes a real-world relationship, what do the slope and the y-intercept represent?</i>	
Lesson J: Nonlinear Functions	391
<i>How are nonlinear functions different from linear functions?</i>	
Glossary	A1

THE COORDINATE GRID

Today's Destination

How can you plot points on a coordinate grid?



Vocabulary

Coordinate Grid A grid formed by a horizontal number line (x -axis) that intersects a vertical number line (y -axis) at a point called the origin

Ordered Pair A pair of values (x, y) used to locate a point on a coordinate plane

Origin The point at which the x - and y -axes intersect in the coordinate grid: $(0, 0)$

Vertex The point shared by two rays, lines, or line segments forming an angle



Problem of the Day



When will Matt be able to buy the guitar? _____



IN THE DRIVER'S SEAT

- 1) Complete each sentence correctly by matching Column A with Column B.

Column A

A vertical line has
A horizontal line has
The points (0, 5) to (4, 8) have
The points (6, 3) to (9, 4) have

Column B

a slope of 0.
a horizontal change of 3 units.
an undefined slope.
a vertical change of 3 units.

Find the slope of the line that passes through each pair of points.

- 2) (3, 0) and (5, 4)

 Compute It!

- 4) (-1, 4) and (3, 2)

 Compute It!

- 3) (6, 4) and (2, -2)

 Compute It!

- 5) (9, 4) and (9, 7)

 Compute It!

Determine whether the slope of the line passing through each pair of points is *negative*, *positive*, *zero*, or *undefined*. Explain by comparing the *x*-coordinates and *y*-coordinates.

- 6) (-5, 2) and (0, 2)

 Explain It!

- 7) (-8, 2) and (-8, 6)

 Explain It!

- 8) (0, 3) and (3, 0)

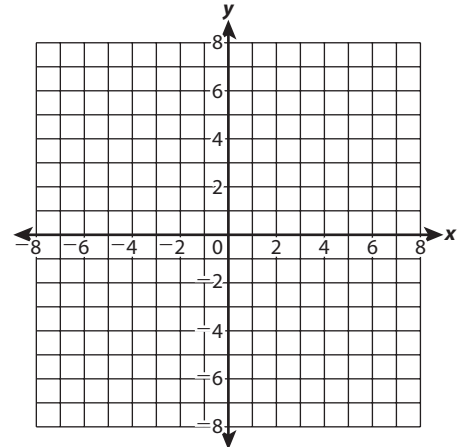
 Explain It!

SIDE TRIPS

1) Compare the functions $y = x^2$ and $y = -x^2$ in the same table and on the same grid.



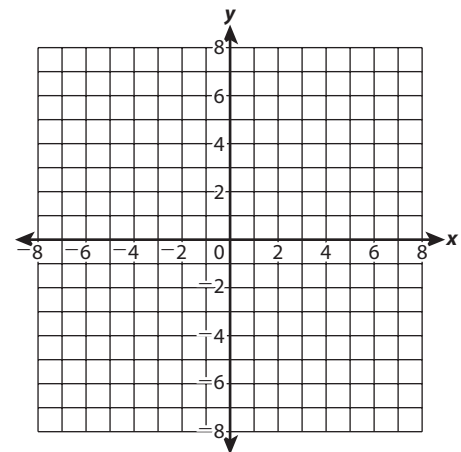
x	$y = x^2$	$y = -x^2$
-2		
-1		
0		
1		
2		



2) Compare the functions $y = x^2$ and $y = x^2 - 1$ in the same table and on the same grid.



x	$y = x^2$	$y = x^2 - 1$
-2		
-1		
0		
1		
2		



3) Compared to the functions above, what would the graph of $y = -x^2 + 1$ look like?



