

Study Guide Review

ASSESSMENT AND INTERVENTION



Assign or customize module reviews.

MODULE PERFORMANCE TASK

COMMON CORE

Mathematical Practices: MP.1, MP.2, MP.4, MP.6
F-IF.B.4, A-CED.A.2

SUPPORTING STUDENT REASONING

Students should begin this problem by writing an equation for each Plan. Here are some questions they might have.

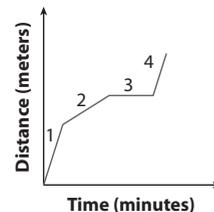
- **What is the maximum value for m ?** Tell students that a season pass is for no more than one year.
- **Can I just pick a value for m and decide which Plan is best for it?** Encourage students to decide on a value for m only after considering each Plan.
- **For Plans B and C, is the first monthly payment in the first or second month?** Have students assume that it is in the second month.

Functions and Models

Essential Question: How can you use functions to solve real-world problems?

KEY EXAMPLE (Lesson 3.1)

The graph below represents Robert's total distance traveled during his walk to school. Write a possible situation for the graph.



Sections 1 and 4 are steeper than section 2, so Robert was walking faster during these times.

Section 3 is horizontal, so Robert was not moving during this time.

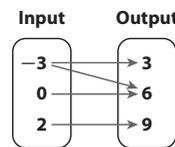
Possible Situation: Robert walked quickly at the beginning of his walk, then he walked at a slower pace. He stopped for a while to talk to some friends. Then, he walked quickly the rest of the way to school.

Key Vocabulary

- continuous graph (*gráfica continua*)
- dependent variable (*variable dependiente*)
- discrete graph (*gráfica discreta*)
- domain (*dominio*)
- function (*función*)
- function notation (*notación de función*)
- independent variable (*variable independiente*)
- range (*rango*)
- relation (*relación*)

KEY EXAMPLE (Lesson 3.2)

Give the domain and range of the relation. Explain whether the relation is a function.



The domain is all inputs, or $\{-3, 0, 2\}$.

The range is all outputs, or $\{3, 6, 9\}$.

A function has at most one output value for each input. The relation is not a function, because the input value -3 has more than one output.

KEY EXAMPLE (Lessons 3.3, 3.4)

Write an equation in function notation for the following example, and graph the function.

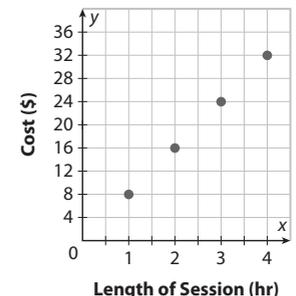
A study skills tutor charges \$8 an hour for sessions lasting 1, 2, 3, or 4 hours.

The independent variable x is the number of hours.

The dependent variable $f(x)$ is the total cost.

The function for the total cost is $f(x) = 8x$.

The ordered pairs for the function $f(x) = 8x$ for the domain $\{1, 2, 3, 4\}$ are $(1, 8)$, $(2, 16)$, $(3, 24)$, and $(4, 32)$.



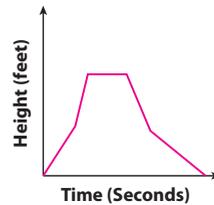
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SCAFFOLDING SUPPORT

- For students who need more structure, suggest they compare only Plans A and C.
- Watch for students who want to represent each of these functions as a linear model. Ask them how they might represent plans to reflect that m can represent a fractional part of a month.

EXERCISES

- Sketch a graph that represents the following situation. A person gets on a ride at an amusement park. The ride rises slowly and then quickly to its highest point. Then, to build anticipation, the ride stops for a period of time before quickly falling. Then, the ride descends more slowly before coming to a stop. (Lesson 3.1)
- Identify the independent and dependent variables of the following relation. Give the domain and range, and explain whether the relation is a function.



A farmer has up to 3 pigs at a time on his farm. The given relation represents the average number of pounds of feed needed for x pigs daily. (Lesson 3.2)

Number of Pigs, x	Pounds of Feed, y
1	55
2	110
3	165

independent variable: number of pigs; dependent variable: pounds of feed; Domain: {1, 2, 3}; Range: {55, 110, 165}; The relation is a function, because each input has a unique output.



- A store sells roasted peanuts in 1, 2, 2.5, and 4 pound bags. The peanuts cost \$4 per pound. Write an equation in function notation that represents the cost of the peanuts in terms of the number of pounds, and graph the function. (Lessons 3.3, 3.4)

$$f(x) = 4x$$

MODULE PERFORMANCE TASK

Season Passes

Wild Planet Theme Park offers three season-pass purchase options.

Plan A	Plan B	Plan C
One payment of \$500	\$80 down payment 6 payments of \$75.00 every other month	\$60 down payment 11 monthly payments of \$45.00

Which payment option is the least expensive?

Use your own paper to complete the task. Be sure to write down all your data. Then use graphs, numbers, words, or algebra to explain how you reached your conclusion.

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DISCUSSION OPPORTUNITIES

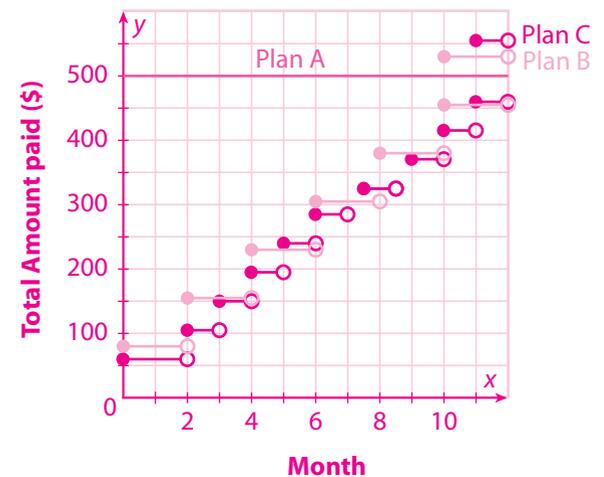
- Ask if there might be good reasons for choosing Plan B or Plan C, even though they cost more than Plan A in the long run.
- Ask students to interpret the y -intercepts of their graphs.
- Have students write an equation that will give y , the total amount for Plan C, for all values of x from 1 to 12.

$$y = 60 + (n - 1)45$$

SAMPLE SOLUTION

Points to plot (month, total paid):

Plan A	Plan B	Plan C
The total amount is \$500 for all values of x .	(0, 80)	(0, 60)
	(1, 80)	(1, 60)
	(2, 155)	(2, 105)
	(3, 155)	(3, 150)
	(4, 230)	(4, 195)
	(5, 230)	(5, 240)
	(6, 305)	(6, 285)
	(7, 305)	(7, 330)
	(8, 380)	(8, 375)
	(9, 380)	(9, 420)
	(10, 455)	(10, 465)
	(11, 455)	(11, 510)
	(12, 530)	(12, 555)



Plan A is most expensive until month 11. It becomes least expensive in month 12.

Assessment Rubric

- 2 points:** Student correctly solves the problem and explains his/her reasoning.
1 point: Student shows good understanding of the problem but does not fully solve or explain.
0 points: Student does not demonstrate understanding of the problem.

Ready to Go On?

ASSESS MASTERY

Use the assessment on this page to determine if students have mastered the concepts and standards covered in this module.

ASSESSMENT AND INTERVENTION



Access Ready to Go On? assessment online, and receive instant scoring, feedback, and customized intervention or enrichment.

ADDITIONAL RESOURCES

Response to Intervention Resources

- Reteach Worksheets

Differentiated Instruction Resources

- Reading Strategies **EL**
- Success for English Learners **EL**
- Challenge Worksheets

Assessment Resources

- Leveled Module Quizzes

Ready to Go On?

3.1–3.4 Functions and Models

1. The graph shown represents the height of a hiker during a period of time. Write a possible situation represented by the graph. (*Lesson 3.1*)

Possible Situation: The hiker walked downhill quickly and then slowly. The hiker rested at the lowest point of the hike. Then, the hiker hiked back uphill at a steady pace.

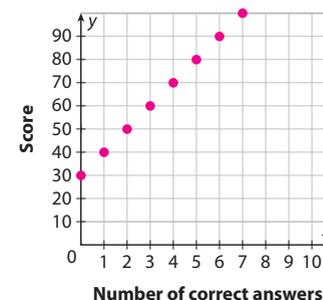


2. Use the vertical line test to determine if the relation represented on the graph from **Exercise 1** is a function. Explain. (*Lesson 3.2*)

Since no vertical line will pass through more than one point, the graph passes the vertical line test. So, the relation is a function.

3. A math test is made up of 7 problems, each worth 10 points. There is no partial credit. Every test taker receives 30 points for taking the test. Write a function to describe the test score determined by the number of correct answers. Graph the function using a reasonable domain and range. (*Lessons 3.3, 3.4*)

$$f(x) = 10x + 30$$



ESSENTIAL QUESTION

4. What is a function?

Possible Answer: A function is a set of ordered pairs in which each term in the domain is paired with exactly one term in the range.



Common Core Standards

Lesson	Items	Content Standards	Mathematical Practices
1.1	1	A-REI.A.1	8.1.A
1.1	2	8.2.A	8.1.F
1.2	3	8.2.A	8.1.F

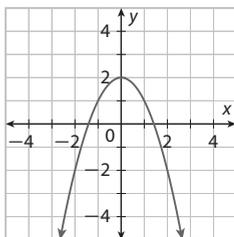


Assessment Readiness

1. Kyle is installing new baseboards and carpet in his rectangular living room. He measured the length as 24.25 feet and the width as 16.4 feet. Select Yes or No for each statement.

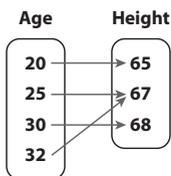
- A. The length is a more precise measurement. Yes No
 B. The area of the room should be given with 3 significant digits. Yes No
 C. The perimeter of the room should be given with 4 significant digits. Yes No

2. The graph represents the function $f(x) = -x^2 + 2$. Select True or False for each statement.



- A. When $x = 1$, $f(x) = 1$. True False
 B. When $f(x) = 2$, $x = -2$. True False
 C. When $x = -1$, $f(x) = 1$. True False

3. The mapping diagram represents the age, in years, and height, rounded to the nearest inch, of a group of friends. Does the diagram represent a function? Explain your answer.



Yes, the diagram represents a function, because each input value is assigned to exactly one output value.

4. An amusement park charges an entrance fee of \$25 plus \$3.50 per ride. Write a function to represent this situation. How much would it cost to go to the park and ride 8 rides?

$f(x) = 3.5x + 25$; it would cost \$53.

MIXED REVIEW

Assessment Readiness

ASSESSMENT AND INTERVENTION



Assign ready-made or customized practice tests to prepare students for high-stakes tests.

ADDITIONAL RESOURCES

Assessment Resources

- Leveled Module Quizzes: Modified, B

AVOID COMMON ERRORS

Item 2 Some students have difficulty associating $f(x)$ and y . Encourage students to label the y -axis with $f(x)$ to remind them that the notations represent the same thing.



Common Core Standards

Lesson	Items	Content Standards	Mathematical Practices
1.1	1*	8.2.B	8.1.A
8.1	2	8.2.A	8.1.F
12.2	3	8.2.A	8.1.F
18.2	4*	8.2.A	8.1.A

* Item integrates mixed review concepts from previous modules or a previous course.