Updated:
November 2021

Marking Period 2	Unit Unit Title: Algebra 1 – Linear and Exponential Modeling: Functions and Bivariate Statistics – Unit 2 - Module A	Recommended Instructional Days 10-12

Domain:		Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-CLKS within Unit
Strand: F.IF.B.4 For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity. *F.IF.A.1 Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the*	*Progress Indicator:* ● *Tests* ● *Quizzes* ● *Practice problems for homework* ● *Workbook pages* ● *Worksheets* ● *Focus Packet* ● *Leveled assessments*	

range. If f is a function and x is an element of its domain, then f(x) denotes the output of f corresponding to the input x. The graph of f is the graph of the equation y = f(x).

F.IF.A.2 Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.

Mathematics Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.

Essential Question/s:
1.What does the domain represent? Range represents?
2 . What does a scatter plot look like if there is no correlation between
the data sets? Positive correlation? Negative correlation?
3. How is identifying an arithmetic sequence similar to identifying a function rule?

Activity Description:

Interdisciplinary Connections: Content: ;NJSLS#:

Social and Emotional Learning: *Competencies*	Social and Emotional Learning: *Sub-Competencies*

Activities:
Application to Arts and Crafts
 Analyze Real-World Functions

An artist spends an afternoon making bracelets using beads she already has. She uses 15 beads for each bracelet. The remaining number R of beads in her supply can be modeled by the function shown, where b represents the number of bracelets she makes. Find and interpret R(0) and R(3). Then graph R(b).

Find and interpret R(0).
R(0) = 90 - 15(0) = 90
R(b) = 90 − 15b
R(0) represents the remaining number of beads when b = 0.
So, before she makes any bracelets, she has 90 beads left.

Find and interpret R(3).
R(3) = 90 - 15(3) = 45
A. Why wouldn't you find R(3.5)?

| Self-Awareness
Social Awareness
Self-Management
Relationship Skills
Responsible Decision-Making | .Recognize one's feelings and thoughts

● Recognize the impact of one's feelings and thoughts on one's own behavior
● Recognize One's personal traits, strengths, and limitations
● Recognize the importance of self-confidence in handling daily tasks and challenges
● Recognize and identify the thoughts, feelings, and perspectives of others
● Demonstrate an awareness of the differences among individuals, groups, and others' cultural backgrounds
● Demonstrate an understanding of the need for mutual respect when viewpoints differ
● Demonstrate an awareness of the expectations for social | **R(3) represents the remaining number of beads when b = 3. So, after making 3 bracelets, she has 45 beads left.**

Graph R(b).
The domain is restricted to the input values that make sense in the context of this real-world function. Use the function rule to identify all points on the graph of the function. Then graph the function by plotting the points.
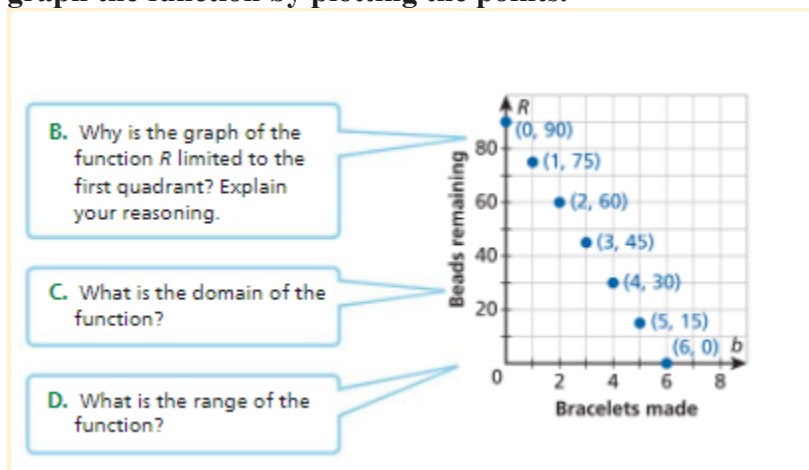
Problem Solving

1) Write a possible situation for the given graph.

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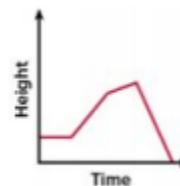
interactions in a variety of settings
- Understand and practice strategies for managing one's own emotions, thoughts, and behaviors
- Recognize the skills needed to establish and achieve personal and educational goals
- Identify and apply ways to persevere or overcome barriers through alternative methods to achieve one's goals
- Establish and maintain healthy relationships
- Utilize positive communication and social skills to interact effectively with others
- Identify ways to resist inappropriate social pressure
- Demonstrate the ability to prevent and resolve interpersonal conflicts in constructive ways
- Identify who, when, where, or how to seek

Answer:

Possible Situation: The level of water in a bucket stays constant. A steady rain raises the level. The rain slows down. Someone dumps the bucket.

**2) Give the domain and range of the relation. Tell whether the relation is a function. Explain.**
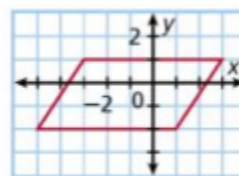
Answer:
D: −5 ≤ x ≤ 3 R: −2 ≤ y ≤ 1

The relation is not a function. Nearly all domain values

have more than one range value.

3) The scatter plot shows a relationship between the total amount of money collected at the concession stand and the total number of tickets sold at a movie theater. Based on this relationship, predict how much money will be collected at the concession stand when 150 tickets have been sold. Draw a trend line and use it to make a prediction.

| | help for oneself or others when needed
 ● Develop, implement, and model effective problem-solving and critical thinking skills
 ● Identify the consequences associated with one's actions in order to make constructive choices
 ● Evaluate personal, ethical, safety, and civic impact of decisions | Concession Stand Sales
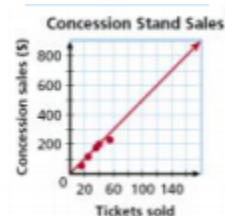
 Answer:

 o Draw a line that has about the same number of points above and below it. Your line may or may not go through data points.
 o Find the point on the line whose x-value is 150. The corresponding y-value is 750.
 o Based on the data, $750 is a reasonable prediction of how much money will be collected when 150 tickets have been sold.

 4) Find the indicated term of the arithmetic sequence
 The 25th term: a1 = –5; d = –2

 Answer:

 $a_n = a_1 + (n - 1)d$ Write a rule to find the nth term
 $a_{25} = -5 + (25 - 1)(-2)$ Substitute –5 for a_1, 25 for n, and –2 for d.
 $= -5 + (24)(-2)$ Simplify the expression in parentheses
 $= -53$

 The 25th term is –53.

 Application to Science

 A certain type of lily plant is growing in a pond in such a way that the number of plants is growing |

exponentially. The number of plants N in the pond at time t is modeled by the function N(t) = ab , where a and b are constants and t is measured in months. The table shows two values of the function.

t	N(t)
0	150
1	450

Write an equation to model this function.

Answer:

$$N(t) = 150(3)^t$$

Highlight on: Climate Change

Understand the difference between climate and weather

One common refrain you might hear is, "It snowed 20 inches today, so explain how global warming is real?" That's when it's time to tackle the difference between weather (the current conditions) and climate (the average of those conditions over time in a particular region). Make an anchor chart. Then try a sorting activity to help kids understand the difference between the two.

Assessments (Formative)	Assessments (Summative)
To show evidence of meeting the standard/s, students will successfully engage within:	*To show evidence of meeting the standard/s, students will successfully complete:*
Formative Assessments:	**Benchmarks:** ● Chapter Tests

- Entry and Exit Slips
- Quizzes
- Self Assessments

- Projects

Summative Assessments:
- Units assessment
- District assessment
- Standardized test

Differentiated Student Access to Content:
Teaching and Learning *Resources/Materials*

Core Resources	Alternate Core Resources *IEP/504/At-Risk/ESL*	ELL Core Resources	Gifted & Talented Core Resources
http://my.hrw.com https://www.khanacademy.org https://www.desmos.com http://www.edulastic.com http://www.quizzizz.com http://www.edpuzzle.com http://www.youtube.com https://www.mathsisfun.com/	- Reteaching worksheets - Skill building workbook - Math manipulatives - Leveled practice worksheets - Differentiation Options - Small group activities	- Dictionary for native language - Video tutorial in native language - Success for English Learners - worksheets - Leveled Strategies for English - Learners - Linguistic Support	- Enrichment worksheets and activities - Challenge questions - Problem Solving workshop - Leveled assessments

Supplemental Resources

Technology: Chromebooks, Graphing Calculators
● Other: Google Meets, Jamboard , whiteboard.fi, Google Classroom

Differentiated Student Access to Content: Recommended *Strategies & Techniques*			
Core Resources	**Alternate Core Resources** *IEP/504/At-Risk/ESL*	**ELL Core Resources**	**Gifted & Talented Core**
Deliver instruction utilizing varied learning styles including audio, visual, and tactile/kinesthetic, provide individual instruction as needed, modify assessments and/or rubrics, repeat	Utilize a multi-sensory (VAKT) approach during instruction, provide alternate presentations of skills by varying the method (repetition, simple explanations, additional examples, modeling, etc.), modify test content and/or format, allow students to retake test for additional credit, provide additional times and preferential seating as needed, review, restate and repeat directions, provide study guides, and/or break assignments into segments of shorter tasks.	Extend time requirements, preferred seating, positive reinforcement, check often for understanding/review, oral/visual directions/prompts when necessary, supplemental materials including use of an online bilingual dictionary, and modified assessment and/or rubric.	Create an enhanced set of introductory activities, integrate active teaching/learning opportunities, incorporate authentic components, propose interest-based extension activities, and connect student to related

NJSLS CAREER READINESS, LIFE LITERACIES & KEY SKILLS	Disciplinary Concept: Global and Cultural Awareness	
	Core Ideas:	Solutions to the problems faced by a global society require the contribution of individuals with different points of view and experiences.
	Performance Expectation/s:	9.4.12.GCA.1: Collaborate with individuals to analyze a variety of potential solutions to climate change effects and determine why some solutions (e.g., political. economic, cultural) may work better than others (e.g., SL.11-12.1., HS-ETS1-1, HS-ETS1-2, HS-ETS1-4, 6.3.12.GeoGI.1, 7.1.IH.IPERS.6, 7.1.IL.IPERS.7, 8.2.12.ETW.3).
	Career Readiness, Life Literacies, & Key Skills Practices	
	Act as a responsible and contributing community member and employee. Attend to financial well-being. Consider the environmental, social and economic impacts of decisions. Demonstrate creativity and innovation. Utilize critical thinking to make sense of problems and persevere in solving them. Model integrity, ethical leadership and effective management. Plan education and career paths aligned to personal goals. Use technology to enhance productivity, increase collaboration and communicate effectively. Work productively in teams while using cultural/global competence.	

New Jersey Legislative Statutes and Administrative Code (place an "X" before each law/statute if/when present within the curriculum map)									
	Amistad Law: *N.J.S.A. 18A 52:16A-88*		Holocaust Law: *N.J.S.A. 18A:35-28*		LGBT and Disabilities Law: *N.J.S.A. 18A:35-4.35*		Diversity & Inclusion: *N.J.S.A. 18A:35-4.36a*	x	Standards in Action: *Climate Change*