Standard #: MAFS.912.F-LE.1.1

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Distinguish between situations that can be modeled with linear functions and with exponential functions. ★

a. Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals.
b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.
c. Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.

Grade: 912

Cluster: Construct and compare linear, quadratic, and exponential models and solve problems. (Algebra 1 - Supporting Cluster) (Algebra 2 - Supporting Cluster) -
Clusters should not be sorted from Major to Supporting and then taught in that order. To do so would strip the coherence of the mathematical ideas and miss the opportunity to enhance the major work of the grade with the supporting clusters.

Date Adopted or Revised: 02/14

Content Complexity Rating: Level 3: Strategic Thinking & Complex Reasoning - More Information

Date of Last Rating: 02/14

Status: State Board Approved

Assessed: Yes

TEST ITEM SPECIFICATIONS

Item Type(s): This benchmark may be assessed using: GRID , item(s)

Also assesses:

MAFS.912.F-LE.2.5

Assessment Limits :
Exponential functions should be in the form $a(b)^x + k$

Calculator :
Neutral

Clarification :
Students will determine whether the real-world context may be represented by a linear function or an exponential function and give the constant rate or the rate of growth or decay.

Students will choose an explanation as to why a context may be modeled by a linear function or an exponential function.
Students will interpret the rate of change and intercepts of a linear function when given an equation that models a real-world context.

Students will interpret the x-intercept, y-intercept, and/or rate of growth or decay of an exponential function given in a real-world context

Stimulus Attributes :
Items should be set in a real-world context.

Items must use function notation.

Response Attributes :
Items may require the student to apply the basic modeling cycle.

Items may require the student to choose a parameter that is described within the real-world context.

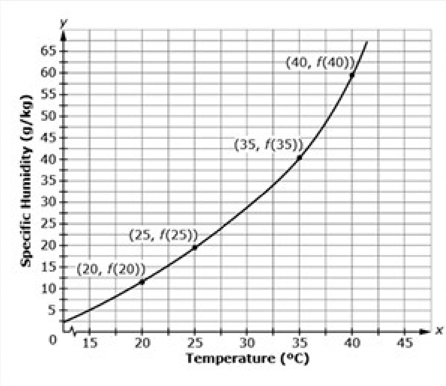
Items may require the student to choose an appropriate level of accuracy.

Items may require the student to choose and interpret the scale in a graph.

Items may require the student to choose and interpret units.

SAMPLE TEST ITEMS (1)

Test Item #: Sample Item 1
Question:
The graph of function f models the specific humidity in the atmosphere, in grams of water vapor per kilogram of atmospheric gas ($\frac{g}{kg}$), versus temperature, in degrees Celsius (ºC), as shown. Four of its points are labeled.



This question has **two** parts.

Part A.

Felicia wants to model the raltionship between temperature, in ºC, and specific humidity, in $\frac{g}{kg}$. Select words to complete the statement about the type of model Felicia should use.

The relationship is _____________ because the specific humidity increases by equal ______ over equal intervals of temperature.

Part B.

Which relationship must be true to justify the function type that models the relationship?

Difficulty: N/A
Type: : Multiple Types

Related Courses

Course Number	Course Title
1200310:	Algebra 1 (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
1200320:	Algebra 1 Honors (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
1200370:	Algebra 1-A (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
1200400:	Intensive Mathematics (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
1207310:	Liberal Arts Mathematics (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
7912060:	Access Informal Geometry (Specifically in versions: 2014 - 2015 (course terminated))
7912070:	Access Liberal Arts Mathematics (Specifically in versions: 2014 - 2015, 2015 - 2018, 2018 - 2019, 2019 and beyond (current))
7912080:	Access Algebra 1A (Specifically in versions: 2014 - 2015, 2015 - 2018, 2018 - 2019, 2019 and beyond (current))
7912090:	Access Algebra 1B (Specifically in versions: 2014 - 2015, 2015 - 2018, 2018 - 2019, 2019 and beyond (current))
2000500:	Bioscience 1 Honors (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
2000510:	Bioscience 2 Honors (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
1200315:	Algebra 1 for Credit Recovery (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
1200375:	Algebra 1-A for Credit Recovery (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
7912065:	Access Geometry (Specifically in versions: 2015 and beyond (current))
7912075:	Access Algebra 1 (Specifically in versions: 2014 - 2015, 2015 - 2018, 2018 - 2019, 2019 and beyond (current))

Related Access Points

Access Point

Access Points Number	Access Points Title
MAFS.912.F-LE.1.AP.1a:	Select the appropriate graphical representation of a linear model based on real-world events.
	In a linear situation using graphs or numbers, predict the change in rate based on a given change in one variable (e.g.,

MAFS.912.F-LE.1.AP.1b:	If I have been adding sugar at a rate of 1T per cup of water, what happens to my rate if I switch to 2T of sugar for every cup of water?).

Related Resources

Problem-Solving Task

Name	Description
Algae Blooms:	In this example, students are asked to write a function describing the population growth of algae. It is implied that this is exponential growth.
Basketball Bounces, Assessment Variation 1:	Students are asked to select the best model for a given context and use the model to make predictions. The purpose of this task is to assess aspects of students' modeling skills in the context of standards: F-LE.1.1.c Distinguish between situations that can be modeled with linear functions and with exponential functions; Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another. F-LE.1.2 Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table). This task asks students to analyze a set of data from a physical context, choose a model that reasonably fits the data, and use the model to answer questions about the physical context. This variant of the task is scaffolded; for a less scaffolded version, see F-LE Basketball Bounces, Assessment Variation 2.
Basketball Bounces, Assessment Variation 2:	This task asks students to analyze a set of data from a physical context, choose a model that reasonably fits the data, and use the model to answer questions about the physical context. This variant of the task is not scaffolded; for a more scaffolded version, see F-LE Basketball Bounces, Assessment Variation 1.
Basketball Rebounds:	This task involves a fairly straightforward decaying exponential. Filling out the table and developing the general formula is complicated only by the need to work with a fraction that requires decisions about rounding and precision.
Carbon 14 Dating, Variation 2:	This exploratory task requires the student to use properties of exponential functions in order to estimate how much Carbon 14 remains in a preserved plant after different amounts of time.
Comparing Exponentials:	This task gives students an opportunity to work with exponential functions in a real world context involving continuously compounded interest. They will study how the base of the exponential function impacts its growth rate and use logarithms to solve exponential equations.
Equal Differences over Equal Intervals 1:	An important property of linear functions is that they grow by equal differences over equal intervals. In F.LE Equal Differences over Equal Intervals 1, students prove this for equal intervals of length one unit, and note that in this case the equal differences have the same value as the slope.
Equal Differences over Equal Intervals 2:	This task assumes that students are familiar with the ?x and ?y notations. Students most likely developed this familiarity in their work with slope.
Equal Factors over Equal Intervals:	This problem assumes that students are familiar with the notation x_0 and Δx. However, the language "successive quotient" may be new.
Exponential Functions:	This task requires students to use the fact that the value of an exponential function f(x) = a · b^x increases by a multiplicative factor of b when x increases by one. It intentionally omits specific values for c and d in order to encourage students to use this fact instead of computing the point of intersection, (p,q), and then computing function values to answer the question.
Identifying Functions:	This problem-solving emphasizes the expectation that students know linear functions grow by constant differences over equal intervals and exponential functions grow by constant factors over equal intervals.
Illegal Fish:	This problem-solving task asks students to describe exponential growth through a real-world problem involving the illegal introduction of fish into a lake.
In the Billions and Exponential Modeling:	This problem-solving task provides students an opportunity to experiment with modeling real data by using population growth rates from the past two centuries.
In the Billions and Linear Modeling:	This problem-solving task asks students to examine if linear modeling would be appropriate to describe and predict population growth from select years.
Interesting Interest Rates:	This problem-solving task challenges students to write expressions and create a table to calculate how much money can be gained after investing at different banks with different interest rates.
Linear Functions:	This task requires students to use the fact that on the graph of the linear function h(x) = ax + b, the y-coordinate increases by a when x increases by one. Specific values for a and b were left out intentionally to encourage students to use the above fact as opposed to computing the point of intersection, (p,q), and then computing respective function values to answer the question.
Linear or exponential?:	This task gives a variation of real-life contexts which could be modeled by a linear or exponential function. The key distinguishing feature between the two is whether the change by equal factors over equal intervals (exponential functions), or by a constant increase per unit interval (linear functions). The task could either be used as an assessment problem on this distinction, or used as an introduction to the differences between these very important classes of functions.
	The purpose of this task is to give students an opportunity to explore various aspects of exponential models (e.g.,

Rising Gas Prices - Compounding and Inflation:	distinguishing between constant absolute growth and constant relative growth, solving equations using logarithms, applying compound interest formulas) in the context of a real world problem with ties to developing financial literacy skills. In particular, students are introduced to the idea of inflation of prices of a single commodity, and are given a very brief introduction to the notion of the Consumer Price Index for measuring inflation of a body of goods.
US Population 1790-1860:	This problem solving task asks students to solve five exponential and linear function problems based on a US population chart for the years 1790-1860.
US Population 1982-1988:	This problem solving task asks students to predict and model US population based on a chart of US population data from 1982 to 1988.
What functions do two graph points determine?:	This problem solving task challenges students to find the linear, exponential and quadratic functions based on two points.

Lesson Plan

Name	Description
Appreciation for Car Depreciation:	Students will use information from the internet or a car dealership's advertisement to identify a car and determine the future value of the car using different depreciation rates over different intervals of time. Students will graph their data to show exponential decay and compare to a linear decrease on the same graph.
BIOSCOPES Summer Institute 2013 - Motion:	This lesson is the first in a sequence of grade 9-12 physical science lessons that are organized around the big ideas that frame motion, forces, and energy. It directly precedes resource # 52648 "BIOSCOPES Summer Institute 2013 - Forces." This lesson is designed along the lines of an iterative 5-E learning cycle and employs a predict, observe, and explain (POE) activity at the beginning of the "Engage" phase in order to elicit student prior knowledge. The POE is followed by a sequence of inquiry-based activities and class discussions that are geared toward leading the students systematically through the exploration of 1-dimensional motion concepts. Included in this resource is a summative assessment as well as a teacher guide for each activity.
Falling for Gravity:	Students will investigate the motion of three objects of different masses undergoing free fall. Additionally, students will: • Use spark timers to collect displacement and time data. • Use this data to calculate the average velocity for the object during each interval. • Graph this data on a velocity versus time graph, V-t. They find the slope of this graph to calculate acceleration. • Calculate the falling object's acceleration from their data table and graph this data on an acceleration versus time graph, a-t. • Use their Spark timer data paper, cut it into intervals, and paste these intervals into their displacement versus time graph.
Functions and Everyday Situations:	This lesson unit is intended to help you assess how well students are able to articulate verbally the relationships between variables arising in everyday contexts, translate between everyday situations and sketch graphs of relationships between variables, interpret algebraic functions in terms of the contexts in which they arise and reflect on the domains of everyday functions and in particular whether they should be discrete or continuous.
Modeling: Having Kittens:	This lesson unit is intended to help you assess how well students are able to interpret a situation and represent the constraints and variables mathematically, select appropriate mathematical methods to use, make sensible estimates and assumptions, investigate an exponentially increasing sequence and communicate their reasoning clearly.
Piles of Paper:	Piles of Paper is a student activity that demonstrates linear and exponential growth using heights of flat and folded paper. Data tables are created and then algebraic models are developed. Real world types of linear and exponential growth are also introduced.
The Towers of Hanoi: Experiential Recursive Thinking:	This lesson is about the Towers of Hanoi problem, a classic famous problem involving recursive thinking to reduce what appears to be a very large and difficult problem into a series of simpler ones. The learning objective is for students to begin to understand recursive logic and thinking, relevant to computer scientists, mathematicians and engineers. The lesson is experiential, in that each student will be working with her/his own Towers of Hanoi manipulative, inexpensively obtained. There is no formal prerequisite, although some familiarity with set theory and functions is helpful. The last three sections of the lesson involve some more formal concepts with recursive equations and proof by induction, so the students who work on those sections should probably be level 11 or 12 in a K-12 educational system. The lesson has a Stop Point for 50-minute classes, followed by three more segments that may require a half to full additional class time. So the teacher may use only those segments up to the Stop Point, or if two class sessions are to be devoted to the lesson, the entire set of segments. Supplies are modest, and may be a set of coins or some washers from a hardware store to assemble small piles of disks in front of each student, each set of disks representing a Towers of Hanoi manipulative. Or the students may assemble before the class a more complete Towers of Hanoi at home, as demonstrated in the video. The classroom activities involve attempting to solve with hand and mind the Towers of Hanoi problem and discussing with fellow students patterns in the process and strategies for solution.
Which Function?:	This activity has students distinguish between data that can be modeled in linear or exponential forms. Show how these models are different in data, algebraic, and graphical forms. Students will: • use the data given to determine the type of functions represented. • create mathematical models that represent the data. • use data to extrapolate additional information to predict future outcomes. • make conjectures based on these predictions. • create graphical representations from data to verify the functions created.

You're Pulling My Leg – or Candy!:	Students will watch a Perspectives Video to see how exponential growth is modeled in the real world. Students then explore how exponential growth and decay can model other real world problems. Students will also discover how manipulating the variables in an exponential equation changes the graph.

Virtual Manipulative

Name	Description
Data Flyer:	Using this virtual manipulative, students are able to graph a function and a set of ordered pairs on the same coordinate plane. The constants, coefficients, and exponents can be adjusted using slider bars, so the student can explore the affect on the graph as the function parameters are changed. Students can also examine the deviation of the data from the function. This activity includes supplemental materials, including background information about the topics covered, a description of how to use the application, and exploration questions for use with the java applet.
Function Flyer:	In this online tool, students input a function to create a graph where the constants, coefficients, and exponents can be adjusted by slider bars. This tool allows students to explore graphs of functions and how adjusting the numbers in the function affect the graph. Using tabs at the top of the page you can also access supplemental materials, including background information about the topics covered, a description of how to use the application, and exploration questions for use with the java applet.
Loan Calculator:	This virtual manipulative allows the user to explore scenarios of a loan repayment by manipulating the amount of the loan, interest rate, payment amount, frequency of payments, and length of the loan in years.

Formative Assessment

Name	Description
Exponential Growth:	Students are given two functions, one represented verbally and the other by a table, and are asked to compare the rate of change in each in the context of the problem.
How Does Your Garden Grow?:	Students are given a linear and an exponential function, one represented verbally and the other by a table. Then students are asked to compare the rate of change in each in the context of the problem.
Linear or Exponential?:	Students are given four verbal descriptions of functions and asked to identify each as either linear or exponential and to justify their choices.
Prove Exponential:	Students are asked to prove that an exponential function grows by equal factors over equal intervals.
Prove Linear:	Students are asked to prove that a linear function grows by equal differences over equal intervals.

Tutorial

Name	Description
Graphing Exponential Equations:	This tutorial will help you to learn about the exponential functions by graphing various equations representing exponential growth and decay.

Perspectives Video: Professional/Enthusiast

Name	Description
KROS Pacific Ocean Kayak Journey: Calories, Distance, and Rowing Rates:	Food is fuel, especially important when your body is powering a boat across the ocean. Related Resources: KROS Pacific Ocean Kayak Journey: GPS Data Set[.XLSX] KROS Pacific Ocean Kayak Journey: Path Visualization for Google Earth[.KML]
KROS Pacific Ocean Kayak Journey: Calories, Exercise, and Metabolism Rates:	How much food do you need to cross the Pacific in a kayak? Get a calculator and a bag of almonds before you watch this. Related Resources: KROS Pacific Ocean Kayak Journey: GPS Data Set[.XLSX] KROS Pacific Ocean Kayak Journey: Path Visualization for Google Earth[.KML]
KROS Pacific Ocean Kayak Journey: Kites, Wind, and Speed:	Lofty ideas about kites helped power a kayak from California to Hawaii. Related Resources: KROS Pacific Ocean Kayak Journey: GPS Data Set[.XLSX] KROS Pacific Ocean Kayak Journey: Path Visualization for Google Earth[.KML]
KROS Pacific Ocean Kayak Journey: Training, Simulation, and Modeling:	Complex problems require complex plans and training. Get in shape to get things done. Related Resources: KROS Pacific Ocean Kayak Journey: GPS Data Set[.XLSX] KROS Pacific Ocean Kayak Journey: Path Visualization for Google Earth[.KML]
KROS Pacific Ocean Kayak Journey: Water Usage Rates:	A seafaring teacher filters all the good information you need to understand water purification rates for distance traveling. Related Resources: KROS Pacific Ocean Kayak Journey: GPS Data Set[.XLSX] KROS Pacific Ocean Kayak Journey: Path Visualization for Google Earth[.KML]
Linear Regression for Analysis of Sea Anemone Data:	Will Ryan describes how linear regression models contribute towards his research on sea anemones.

Slope and Deep Sea Sharks:	Shark researcher, Chip Cotton, discusses the use of regression lines, slope, and determining the strength of the models he uses in his research.

Professional Development

Name	Description
Mathematical Modeling: Insights into Algebra, Teaching for Learning:	This professional development resource provides a rich collection of information to help teachers engage students more effectively in mathematical modeling. It features videos of two complete lessons with commentary, background information on effective teaching, modeling, and lesson study, full lesson plans to teach both example lessons, examples of student work from the lessons, tips for effective teaching strategies, and list of helpful resources. • In Lesson 1 students use mathematical models (tables and equations) to represent the relationship between the number of revolutions made by a "driver" and a "follower" (two connected gears in a system), and they will explain the significance of the radii of the gears in regard to this relationship. • In Lesson 2 students mathematically model the growth of populations and use exponential functions to represent that growth.

Video/Audio/Animation

Name	Description
MIT BLOSSOMS - Flu Math Games:	This video lesson shows students that math can play a role in understanding how an infectious disease spreads and how it can be controlled. During this lesson, students will see and use both deterministic and probabilistic models and will learn by doing through role-playing exercises. There are no formal prerequisites, as students in any high school or even middle school math class could enjoy this learning video. But more advanced classes can go into the optional applied probability modeling that accompanies the module in a downloadable pdf file. The primary exercises between video segments of this lesson are class-intensive simulation games in which members of the class 'infect' each other under alternative math modeling assumptions about disease progression. Also there is an occasional class discussion and local discussion with nearby classmates.

Assessment

Name	Description
Sample 1 - High School Algebra 1 State Interim Assessment:	This is the State Interim Assessment for high school.
Sample 2 - High School Algebra 1 State Interim Assessment:	This is a State Interim Assessment for 9th-12th grades.
Sample 3 - High School Algebra 1 State Interim Assessment:	This is a State Interim Assessment for 9th-12th grades.
Sample 4 - High School Algebra 1 State Interim Assessment:	This is a State Interim Assessment for 9th-12th grades.

Unit/Lesson Sequence

Name	Description
Sample Algebra 1 Curriculum Plan Using CMAP:	This sample Algebra 1 CMAP is a fully customizable resource and curriculum-planning tool that provides a framework for the Algebra 1 Course. The units and standards are customizable and the CMAP allows instructors to add lessons, worksheets, and other resources as needed. This CMAP also includes rows that automatically filter and display Math Formative Assessments System tasks, E-Learning Original Student Tutorials and Perspectives Videos that are aligned to the standards, available on CPALMS. Learn more about the sample Algebra 1 CMAP, its features and customizability by watching the following video: Could not load plugins: File not found **Using this CMAP** To view an introduction on the CMAP tool, please click here. To view the CMAP, click on the "Open Resource Page" button above; be sure you are logged in to your iCPALMS

	account. To use this CMAP, click on the "Clone" button once the CMAP opens in the "Open Resource Page." Once the CMAP is cloned, you will be able to see it as a class inside your iCPALMS My Planner (CMAPs) app. To access your My Planner App and the cloned CMAP, click on the iCPALMS tab in the top menu. All CMAP tutorials can be found within the iCPALMS Planner App or at the following URL: http://www.cpalms.org/support/tutorials_and_informational_videos.aspx

Lesson Study Resource Kit

Name	Description
The Motion of Objects:	This 9-12 Lesson study resource kit is designed to engage teachers of physical science and physics in the planning and design of an instructional unit and research lesson pertaining to the motion of objects. Included in this resource kit are unit plans, concept progressions, formative and summative assessments, complex informational texts, and etc. that align to relevant NGSSS science, and the new Florida standards for mathematics and English language arts.

Perspectives Video: Expert

Name	Description
Tree Rings Research to Inform Land Management Practices:	In this video, fire ecologist Monica Rother describes tree ring research and applications for land management.

Student Resources

Name	Description
Algae Blooms:	In this example, students are asked to write a function describing the population growth of algae. It is implied that this is exponential growth.
Basketball Rebounds:	This task involves a fairly straightforward decaying exponential. Filling out the table and developing the general formula is complicated only by the need to work with a fraction that requires decisions about rounding and precision.
Carbon 14 Dating, Variation 2:	This exploratory task requires the student to use properties of exponential functions in order to estimate how much Carbon 14 remains in a preserved plant after different amounts of time.
Comparing Exponentials:	This task gives students an opportunity to work with exponential functions in a real world context involving continuously compounded interest. They will study how the base of the exponential function impacts its growth rate and use logarithms to solve exponential equations.
Data Flyer:	Using this virtual manipulative, students are able to graph a function and a set of ordered pairs on the same coordinate plane. The constants, coefficients, and exponents can be adjusted using slider bars, so the student can explore the affect on the graph as the function parameters are changed. Students can also examine the deviation of the data from the function. This activity includes supplemental materials, including background information about the topics covered, a description of how to use the application, and exploration questions for use with the java applet.
Equal Differences over Equal Intervals 1:	An important property of linear functions is that they grow by equal differences over equal intervals. In F.LE Equal Differences over Equal Intervals 1, students prove this for equal intervals of length one unit, and note that in this case the equal differences have the same value as the slope.
Equal Differences over Equal Intervals 2:	This task assumes that students are familiar with the ?x and ?y notations. Students most likely developed this familiarity in their work with slope.
Equal Factors over Equal Intervals:	This problem assumes that students are familiar with the notation x_0 and Δx. However, the language "successive quotient" may be new.
Exponential Functions:	This task requires students to use the fact that the value of an exponential function f(x) = a · b^x increases by a multiplicative factor of b when x increases by one. It intentionally omits specific values for c and d in order to encourage students to use this fact instead of computing the point of intersection, (p,q), and then computing function values to answer the question.
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Graphing Exponential Equations:	This tutorial will help you to learn about the exponential functions by graphing various equations representing exponential growth and decay.
Identifying Functions:	This problem-solving emphasizes the expectation that students know linear functions grow by constant differences over equal intervals and exponential functions grow by constant factors over equal intervals.
Illegal Fish:	This problem-solving task asks students to describe exponential growth through a real-world problem involving the illegal introduction of fish into a lake.
In the Billions and Exponential Modeling:	This problem-solving task provides students an opportunity to experiment with modeling real data by using population growth rates from the past two centuries.

In the Billions and Linear Modeling:	This problem-solving task asks students to examine if linear modeling would be appropriate to describe and predict population growth from select years.
Interesting Interest Rates:	This problem-solving task challenges students to write expressions and create a table to calculate how much money can be gained after investing at different banks with different interest rates.
Linear Functions:	This task requires students to use the fact that on the graph of the linear function h(x) = ax + b, the y-coordinate increases by a when x increases by one. Specific values for a and b were left out intentionally to encourage students to use the above fact as opposed to computing the point of intersection, (p,q), and then computing respective function values to answer the question.
Linear or exponential?:	This task gives a variation of real-life contexts which could be modeled by a linear or exponential function. The key distinguishing feature between the two is whether the change by equal factors over equal intervals (exponential functions), or by a constant increase per unit interval (linear functions). The task could either be used as an assessment problem on this distinction, or used as an introduction to the differences between these very important classes of functions.
Loan Calculator:	This virtual manipulative allows the user to explore scenarios of a loan repayment by manipulating the amount of the loan, interest rate, payment amount, frequency of payments, and length of the loan in years.
Rising Gas Prices - Compounding and Inflation:	The purpose of this task is to give students an opportunity to explore various aspects of exponential models (e.g., distinguishing between constant absolute growth and constant relative growth, solving equations using logarithms, applying compound interest formulas) in the context of a real world problem with ties to developing financial literacy skills. In particular, students are introduced to the idea of inflation of prices of a single commodity, and are given a very brief introduction to the notion of the Consumer Price Index for measuring inflation of a body of goods.
US Population 1790-1860:	This problem solving task asks students to solve five exponential and linear function problems based on a US population chart for the years 1790-1860.
US Population 1982-1988:	This problem solving task asks students to predict and model US population based on a chart of US population data from 1982 to 1988.
What functions do two graph points determine?:	This problem solving task challenges students to find the linear, exponential and quadratic functions based on two points.

Parent Resources

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	This task requires students to use the fact that on the graph of the linear function h(x) = ax + b, the y-coordinate increases

Linear Functions:	by a when x increases by one. Specific values for a and b were left out intentionally to encourage students to use the above fact as opposed to computing the point of intersection, (p,q), and then computing respective function values to answer the question.
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US Population 1790-1860:	This problem solving task asks students to solve five exponential and linear function problems based on a US population chart for the years 1790-1860.
US Population 1982-1988:	This problem solving task asks students to predict and model US population based on a chart of US population data from 1982 to 1988.
What functions do two graph points determine?:	This problem solving task challenges students to find the linear, exponential and quadratic functions based on two points.