<table>
<thead>
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<th># of A/B Days</th>
<th>Days</th>
<th>Unit 3: Linear Functions</th>
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<td>20</td>
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<td>2</td>
<td>21, 22</td>
<td>2A word problems Domain Range lesson 2A wkst discrete continuous quiz domain and range</td>
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<td>6</td>
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<td>3A, 3B, 3C, 2B, 2C, 4C page1 3A 3B 3C part1 3A, 3B, 3C part2 2B, 2C, 3A, 3B,3C Writing and graphing (standard form)</td>
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12A - Is it Function  
4A – Correlation Coefficient  
4B – Association and Causation  
4C – Linear Regression  
12B - Evaluating Functions  
2A - Domain and Range  
3C – Graph Linear Functions / Attributes  
3A / 3B Slope  
2B / 2C – Writing Functions  
4C – Linear Regression  
2D - Direct Variation  
2E/F/G – Parallel / Perpendicular Lines  
12C/12D – Arithmetic Sequence  
3E - Transformation  
5C, 2I, 3G, 3F – Systems  
5B, 2H, 3H, 3D Inequality  
11B Rules Of Exponents  
10A-10D Polynomials  
6A- 8B Quadratic  
9A-9E Exponential  
4C 8B 9E Regressions  
STAAR Test  
5C Elimination / Substitution

Prerequisite TEKS: 6.6A, 6.6B, 6.6C, 6.13A, 7.12A, 8.5D

Mathematical Process Standards
1A apply mathematics to problems arising in everyday life, society, and the workplace;
1B use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;
1C select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;
1D communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;
1E create and use representations to organize, record, and communicate mathematical ideas;
1F analyze mathematical relationships to connect and communicate mathematical ideas; and
1G display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.
Prep work for standards 2B/2C

2. The price of one t-shirt is $3. When 90 t-shirts are bought $270 is spent. If the total cost of the t-shirts purchased is a function of the number of t-shirts bought, what does the phrase "90 t-shirts are bought and $270 is spent" represent?

Guiding Questions: start each target with the word "how"

Formative Assessment: pick one problem from each row or so

Instructional Strategies: targets listed below

Targets (SWBAT)

• Identify x and y coordinates if given in the word problem
• Identify slope, y-intercept, and x-intercepts if given in the word problem
• Use the phrases that identify independent and dependent variables to identify whether the given information in the word problem is the slope, a point, or an intercept
• Interpret information on a graph
• Evaluate functions given in a word problem
• Identify the slope and y-intercept given in the word problem

Key words/phrases:

Resources: Think Through Math [www.thinkthroughmath.com](http://www.thinkthroughmath.com)
2A determine the domain and range of a linear function in mathematical problems; determine reasonable domain and range values for real-world situations, both continuous and discrete; and represent domain and range using inequalities; Readiness Standard

Guiding Questions: start each target with the word how
Formative Assessment: pick one problem from each row or so
Instructional Strategies: targets listed below

Targets (SWBAT)

- Use phrases that identify the independent and dependent variables to find the domain and range. Meaning you correctly label the domain as the independent variable and range as the dependent variable
- Connect how graphs, tables, and equations relate to each other
- Show how the table has the same slope displayed in the function
- Determine if a word problem is discrete or continuous
- Determine if the domain and range should be represented by inequalities or set notation
- Represent an ordered pair(points from the table) using function notation
- Identify the hidden clues in a word problem that reveal what the independent and dependent variables are.
  - d(x), miles means the dependent variable will be represented by miles
  - x quarts of paint means the independent variable will be represented by quarts of paint
- Recall the following from the x hangs the I (independent) on the y sites the D (dependent variable)

Key words/phrases: Domain and range, function notation, inequalities, maximum domain and range values, slope and y-intercept
3C graph linear functions on the coordinate plane and identify key features, including x-intercept, y-intercept, zeros, and slope, in mathematical and real-world problems. **Readiness Standard**

3A determine the slope of a line given a table of values, a graph, two points on the line, and an equation written in various forms, including \( y = mx + b \), \( Ax + By = C \), and \( y - y_1 = m(x - x_1) \). **Supporting Standard**

3B calculate the rate of change of a linear function represented tabularly, graphically, or algebraically in context of mathematical and real-world problems. **Readiness Standard**

2B write linear equations in two variables in various forms, including \( y = mx + b \), \( Ax + By = C \), and \( y - y_1 = m(x - x_1) \), given one point and the slope and given two points. **Supporting Standard**

2C write linear equations in two variables given a table of values, a graph, and a verbal description. **Readiness Standard**

Guiding Questions: start each target with the word how

Formative Assessment: pick one problem from each row or so

Instructional Strategies: targets listed below

Targets SWBAT

- Explore the world of linear function and how everything about functions connects to each other
  - Finding slope given a graph
  - Finding slope given a table
  - Build the table starting with the y-intercept
  - Represent the slope using the independent and dependent variables
  - Express the points using function notation
  - Write the equation of the line in two forms
  - Identify the restrictions of the graph to properly represent the domain and range using inequalities

- Optional: Think outside the box. They would imagine the examples as scatter plots and the line graphed as the best fit line. Remember: there is causation when \( r=1 \), because there is a constant rate of change. 4A, 4B, 4C is taught in algebra 2 as well as in statistics. But in statistics, an experiment must be done before the example can be labeled as causation. Therefore, the dependent variable for sure depends on the independent variable (algebra 1’s experiment) when there is constant rate of change (r=1).

- Create the tables of vertical and horizontal lines on a table and write it’s equation
- Find the best fit line of the given data reported in the tables and practice locating r (correlation coefficient)

Key Phrases: slope, y-intercept, zeros, function notation, x-intercept, point-slope, linear function, causation and association, discrete, continuous, slope-intercept, domain and range, correlation coefficient
3C graph linear functions on the coordinate plane and identify key features, including x-intercept, y-intercept, zeros, and slope, in mathematical and real-world problems; **Readiness Standard**

3A determine the slope of a line given a table of values, a graph, two points on the line, and an equation written in various forms, including $y = mx + b$, $Ax + By = C$, and $y - y_1 = m(x - x_1)$; **Supporting Standard**

3B calculate the rate of change of a linear function represented tabularly, graphically, or algebraically in context of mathematical and real-world problems; **Readiness Standard**

2B write linear equations in two variables in various forms, including $y = mx + b$, $Ax + By = C$, and $y - y_1 = m(x - x_1)$, given one point and the slope and given two points; **Supporting Standard**

2C write linear equations in two variables given a table of values, a graph, and a verbal description; **Readiness Standard**

**Guiding Questions:** start each target with the word how

**Formative Assessment:** pick one problem from each row or so

**Instructional Strategies:** targets listed below

**Target SWBAT**

- Explore the world of linear function and how everything about functions connects to each other
  - Finding slope given a graph
  - Represent the slope using the independent and dependent variables
  - Write the equation of the line in two forms
  - Identify the restrictions of the graph to properly represent the domain and range using inequalities
- Write the meaning of the x-intercept(zero), y-intercept, and slope
- Use the “phrase with respect to” to identify the independent and dependent variables
- Review domain and range of linear function

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1. What is the equation of the line below?

![Graph of packaging shampoo bottles](image)

**Give the meaning of each below.**

- **slope:** 
- **y-intercept:** 
- **x-intercept:** 
- **zero:**

- **y-intercept:** 
- **Domain:**
- **Range:**

**Key words/phrases:** x-intercept, y-intercept, slope, domain and range, zero, solve for y, with respect to
3C graph linear functions on the coordinate plane and identify key features, including x-intercept, y-intercept, zeros, and slope, in mathematical and real-world problems. **Readiness Standard**

3A determine the slope of a line given a table of values, a graph, two points on the line, and an equation written in various forms, including \( y = mx + b \), \( Ax + By = C \), and \( y - y_1 = m(x - x_1) \). **Supporting Standard**

3B calculate the rate of change of a linear function represented tabularly, graphically, or algebraically in context of mathematical and real-world problems. **Readiness Standard**

2B write linear equations in two variables in various forms, including \( y = mx + b \), \( Ax + By = C \), and \( y - y_1 = m(x - x_1) \), given one point and the slope and given two points. **Supporting Standard**

2C write linear equations in two variables given a table of values, a graph, and a verbal description. **Readiness Standard**

Name ____________________________

3A, 3B, 3C, 2B, 2C, 4C

Find the **rate of change** for each graph

<table>
<thead>
<tr>
<th>min</th>
<th>bottles</th>
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<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
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\[ m = \frac{\text{number of bottles}}{\text{minute}} = \]  

Use a linear regression as a short cut to write the equation of a line in slope intercept form.

\[ f(x) = mx + b \]

\[ y = x + b \]

\[ m \] = ________

\[ b \] = ________

Use any point and the slope the find to write the equation of the line in point-slope form.

\[ y - y_1 = m(x - x_1) \]

\[ y = (x - ) \]

Guiding Questions: start each target with the word how

Formative Assessment: pick one problem from each row or so

Instructional Strategies: targets listed below

Targets (SWBAT)

- Write equations of a line given two points, a table, verbal descriptions
- Use the “phrase with respect to” to identify the independent and dependent variables
- Use a linear regression to write the equation of a line given two points in two forms
- Revisit solving for \( y \) and finding the slope of a line given a graph
- Write equations of vertical and horizontal lines (zero and undefined slope)

Key words/phrases: point-slope, slope, y-intercept, function notation, slope-intercept, undefined slope, zero slope
5. Cool Cats Phone Company charges $5 per month plus a flat fee. In one month how many text messages were sent?
   A. \( y = 5x + 0.25 \)
   B. \( y = 5 + 0.25x \)
   C. \( y = 5x + 0.25 \)

Guiding Questions: start each target with the word how

Formative Assessment: pick one problem from each row or so

Instructional Strategies: targets listed below

Targets (SWBAT)

- Write equations from verbal descriptions in slope-intercept form and standard form.
- Graph functions after finding the \( x \) and \( y \) intercepts given a linear equation in standard form.
- Find the \( x \) and \( y \) intercepts using the cover up method.

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6. Each coffee mug cost $3, and each key chain costs $1. Write an equation that describes this scenario.
   A. \( 3x + 2y = 18 \)
   B. \( 3x + 2y = 18 \)
   C. \( 3x + 2x = 18 \)

7. Each coffee mug cost $3, and each key chain costs $1. Write an equation that describes this scenario.
   A. \( 3y + 2y = 18 \)
   B. \( 3x + 2y = 18 \)

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Senior class charged $3 to wash a car and $5 to wash a pick-up truck or a sport utility vehicle. They earned a total of $50. Write the equation that describes the scenario.

Equation: __________________________

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![Graph of a line with labeled intercepts](image)

**Key words/phrases:** cover up method, standard form of a linear equation, slope-intercept form