

1.03 Toolbox - MDFL

Linear Functions

Vocabulary (page 1 of 6)	Help Video and work space:
<p>A _____ describes a relationship between numbers and pairs _____ values with _____ values.</p> <p>The _____ of a relation is the possible input values, or _____. The _____ is the possible output values, or _____ of the relation.</p> <p>Graphically, we can check if a relation is a function with the _____ test.</p>	<p>Video: https://bit.ly/MDFL103AA</p>
<p>When an equation is a function it is written in _____ notation. We often use the notation $f(x)$ in place of the variable “_____”.</p>	
<p>When a function changes at a _____ rate, a _____ equation can be written to model this change.</p>	

Evaluating Functions (page 2 of 6)	Help Video and work space:
<p>Example: For the function $g(x) = 4x - 1$, determine $g(\frac{1}{2})$.</p>	<p>Video: https://bit.ly/MDFL103BB</p>

<p>Example: Given the function $f(x) = 5x + 6$, solve for $f(x) = -4$</p>	<p>Video: https://bit.ly/MDFL103CC</p>
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<p>Example: Amara would like to purchase her first vehicle. She has already saved \$1200 . Amara is going to spend the summer tutoring students and will charge \$18 for each hour that she tutors. She will put all her earnings in a savings account.</p> <p>She uses the function $f(x) = 1200 + 18x$. Amara wants to purchase a car for \$5700. How many hours must she work so she can afford the car?</p>	<p>Video: https://bit.ly/MDFL103DD</p>

<p>Graphing Linear Functions (page 3 of 6)</p>	<p>Help Video and work space:</p>
<p>The value where the graph intersects the x-axis is called the _____.</p>	<p>Video: https://bit.ly/MDFL103EE</p>

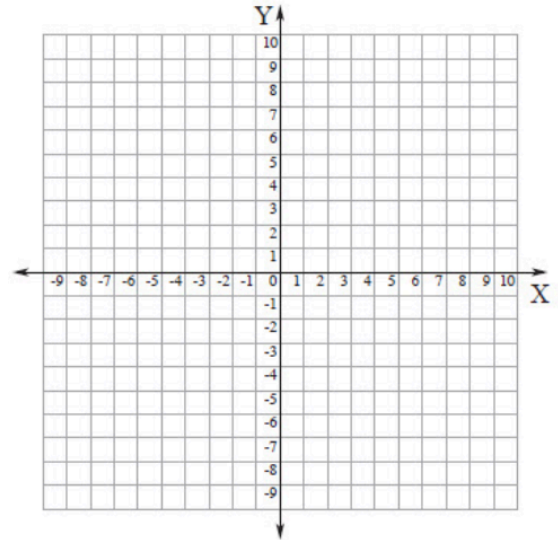
The value where the graph intersects the y-axis is called the _____.

The set of possible x-values of a function or relation is called the _____.

The set of possible y-values of a function or relation is called the _____.

The ratio below is called _____ or _____.

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$



Domain and Range Notation (page 3 of 6)

There are 3 common types of notations that are mentioned in the lesson that can be used when defining domain and range. They are:

- 1.
- 2.
- 3.

Forms of a Linear Function (page 3 of 6)

Linear equations can be written in one of 3 forms:

- 1.
- 2.
- 3.

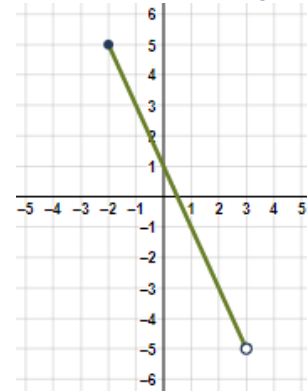
In slope intercept form, $y = mx + b$:

m represents _____

b represents _____

Help Video and work space:

Video: <https://bit.ly/MDFL103FF>



Video: <https://bit.ly/MDFL103GG>

<p>In standard form, $Ax + By = C$: the x- and y-terms _____ and the _____ is on the other side of the equation. A, B, and C must be _____ and A must be a positive number.</p>	
<p>In point-slope form, $y - y_1 = m(x - x_1)$: (x_1, y_1) is any point on the line and _____ is the slope.</p>	

Modeling with Linear Functions (page 4 of 6)	Help Video:
<p>Example: Natasha decides to lease a new car and knows that at the end of the lease she can purchase the car for the amount of money still owed for it. The car's price is \$40,000. Natasha will pay \$400 per month to lease the car.</p> <p>If x represents the number of months since the lease began, what function can represent the amount of money still owed on the car?</p> <p>What is the range of the function based on the context of the problem?</p> <p>What is the x-intercept and its interpretation?</p>	<p>Video: https://bit.ly/MDFL103HH</p>

Solving Money Problems (page 5 of 6)	Help Video and work space:
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Brielle has decided to start her own business. To run the business, Brielle has to pay for rent, utilities, and other associated costs. In total, her bills cost \$2,500 per month. Each day, Brielle's business earns \$400. Let x represent the number of days in the first month since opening her business in January and $B(x)$ represent the profit of Brielle's business.

What is the y-int and its interpretation?

Write an equation of a linear function that represents the situation.

What is the x-int and its interpretation?

What is the domain?

Graph the linear function.

Video: <https://bit.ly/MDFL103JJ>

