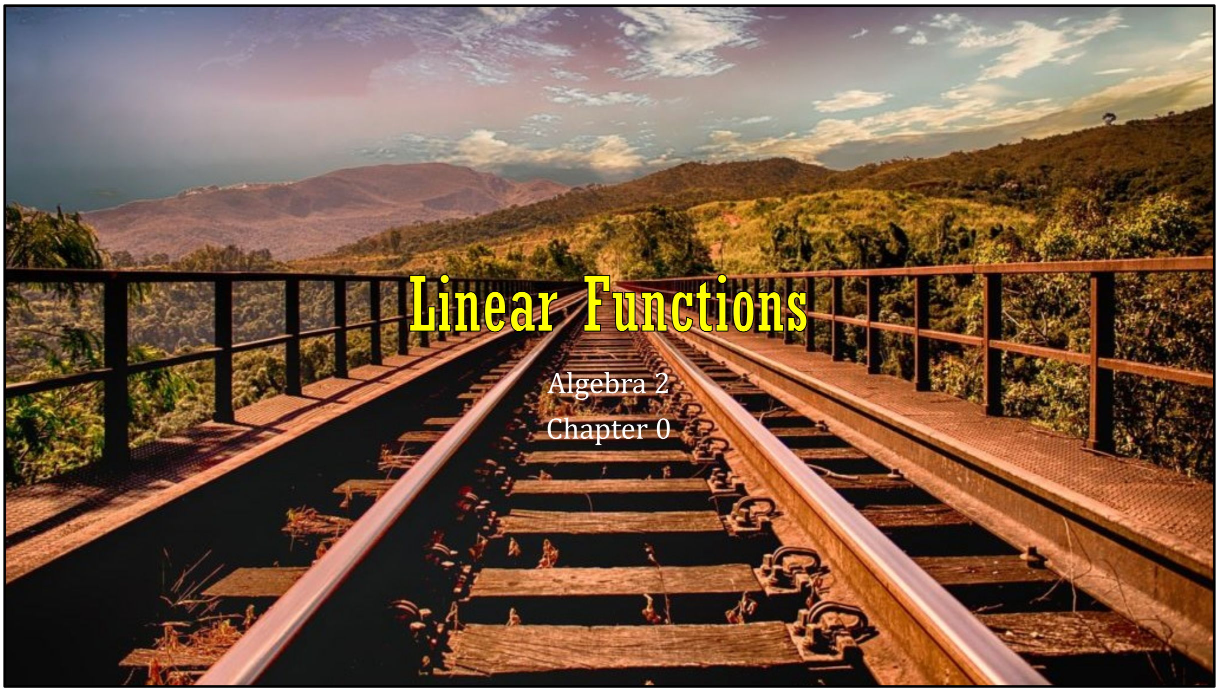
Linear Functions
Algebra 2
Chapter 0

- This Slideshow was developed to accompany the textbook
  - *Big Ideas Algebra 2*
  - *By Larson, R., Boswell*
  - *2022 K12 (National Geographic/Cengage)*
- Some examples and diagrams are taken from the textbook.

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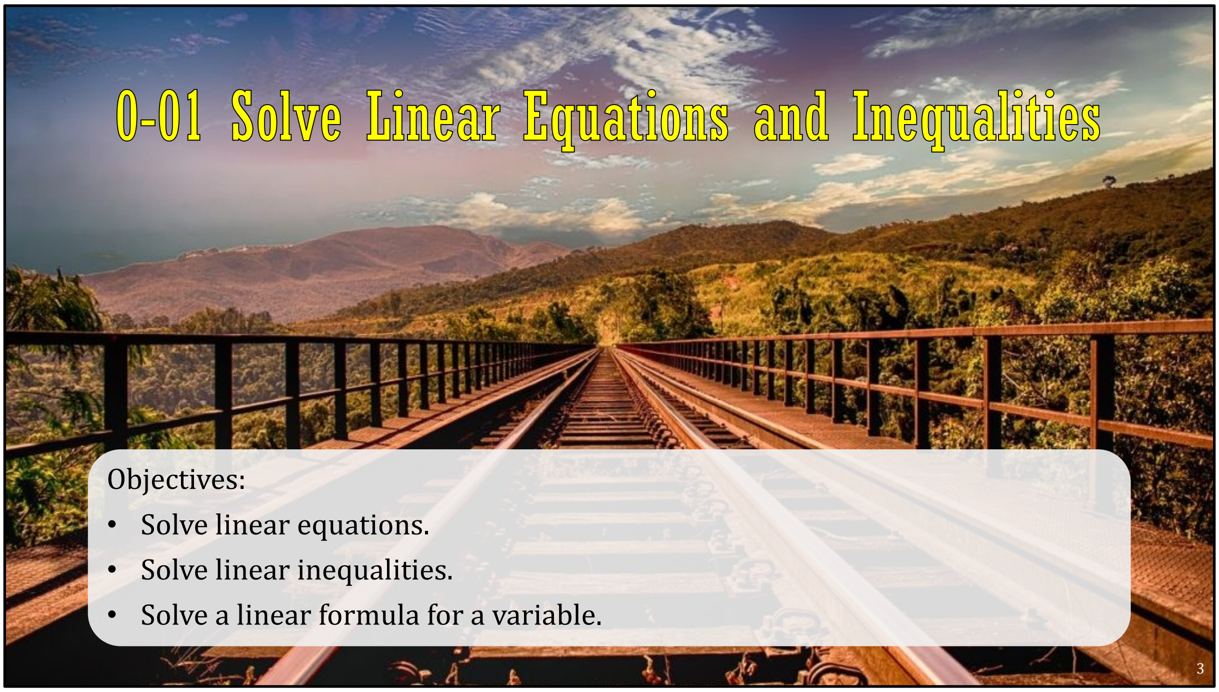
0-01 Solve Linear Equations and Inequalities
Objectives:
• Solve linear equations.
• Solve linear inequalities.
• Solve a linear formula for a variable.
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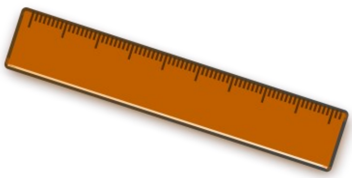
0-01 Solve Linear Equations and Inequalities

Golden Rule

- Do unto others as you would like them to do unto you.

Jesus



Golden Rule of Algebra

- Do unto one side of the equation as you have done unto the other side.

0-01 Solve Linear Equations and Inequalities

- **General way to solve linear equations**
  - Get the variables all on one side
  - Get everything away from the variables

Always follow the Golden Rule!!!

0-01 Solve Linear Equations and Inequalities

- Solve $3x + 6 = 0$
- Solve $2(x + 1) = 5x$

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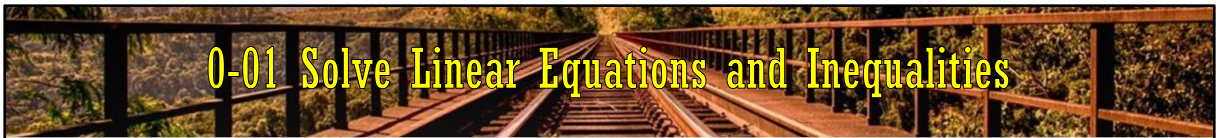
$$3x + 6 = 0$$
$$3x = -6$$
$$x = -2$$

$$2(x + 1) = 5x$$
$$2x + 2 = 5x$$
$$2 = 3x$$
$$\frac{2}{3} = x$$



0-01 Solve Linear Equations and Inequalities

- Solve $4(x+5) \geq 16$
- Solve $-2x+5 < 17-x$

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$$4(x+5) \geq 16$$
$$x+5 \geq 4$$
$$x \geq -1$$

$$-2x+5 < 17-x$$
$$-x+5 < 17$$
$$-x < 12$$
$$x > -12$$

0-01 Solve Linear Equations and Inequalities

- Solve for y: $2x + 5y = 12$
- Solve for h: $3rh + 5h = 7$

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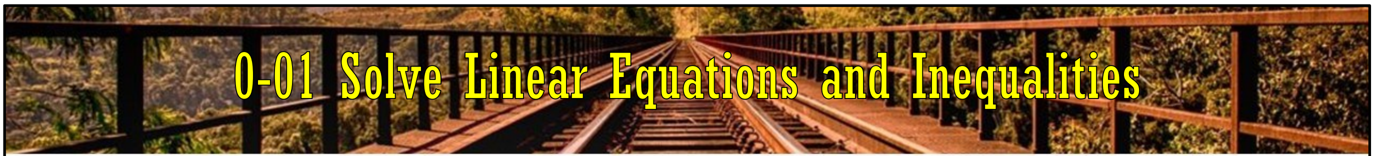
$$2x + 5y = 12$$
$$5y = 12 - 2x$$
$$y = \frac{12 - 2x}{5}$$

$$3rh + 5h = 7$$
$$h(3r + 5) = 7$$
$$h = \frac{7}{3r + 5}$$



0-01 Solve Linear Equations and Inequalities

- A real estate agent's base salary is \$22,000 per year. The agent earns a 4% commission on total sales. How much must the agent sell to earn \$60,000 in one year?

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$$Total\ money = base\ salary + commission\ percent \cdot sales$$
$$60000 = 22000 + 0.04x$$
$$38000 = 0.04x$$
$$x = 950{,}000$$

0-02 Use Problem Solving Strategies and Models

Objectives:

- Use problem solving strategies to solve real-life problems.

0-02 Use Problem Solving Strategies and Models

- The USA uses degrees Fahrenheit for temperature.
- The rest of the world uses degrees Celsius.
- That means we need a formula to convert between them.

0-02 Use Problem Solving Strategies and Models

Common formulas (Memorize!)

- Distance/Rate $d = rt$
- Temperature $F = \frac{9}{5}C + 32$
- Area of a Triangle $A = \frac{1}{2}bh$
- Area of a Rectangle $A = \ell w$
- Perimeter of a Rectangle $P = 2\ell + 2w$
- Area of a Trapezoid $A = \frac{1}{2}(b_1 + b_2)h$
- Area of a Circle $A = \pi r^2$
- Circumference of a Circle $C = 2\pi r$

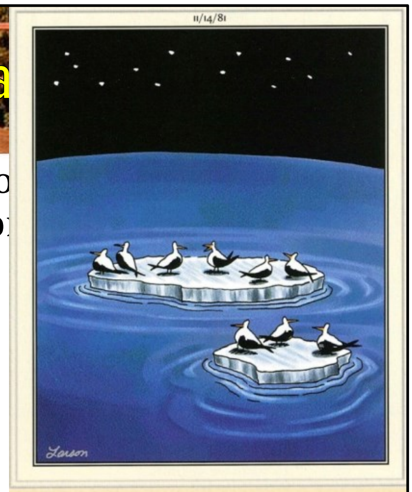
0-02 Use Problem Solving Strategies and Models

- Easiest to start by writing an equation in words. This is called a ***verbal model***.
- You probably think this way in your head already.

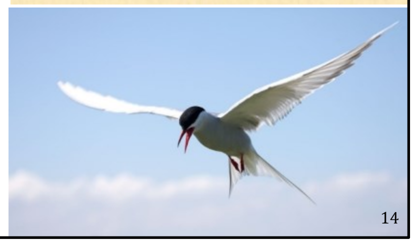
- **Ways to find a verbal model**
- Use a formula
- Look for a pattern
- Draw a diagram

0-02 Use Problem Solving Strategies a

- An artic tern flies an average speed of 16.7 miles per ho
  take to fly from its winter grounds in Antarctica to its b
  Greenland, a distance of 12000 miles?



"You imbecile! We flew 12,000 miles for THIS?"



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$$Distance = rate \cdot time$$
$$12000\ mi = 16.7\frac{mi}{hr} \cdot t$$
$$t = 719\ hr = 29.9\ days$$

0-02 Use Problem Solving Strategies and Models

- PARAMOTORING: The table shows the height h of a paramotorist after t minutes. Find the height of the paramotorist after 8 minutes.

Time (min), *t*	0	1	2	3	4
Height (ft), *h*	2400	2190	1980	1770	1560

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Subtracting consecutive heights shows that the paramotorist is losing 210 ft per min.

$$Height = initial\ height - rate \cdot time$$
$$h = 2400\ ft - 210\frac{ft}{\text{min}} \cdot 8\ \text{min}$$
$$h = 720\ ft$$

0-02 Use Problem Solving Strategies and Models

- A bear walks 10 miles towards the west. Then it turns around and walks back east for 2 miles to try to catch a fish. After lunch it walks 5 more miles west until it finds a place to sleep. How far is the bear's sleeping location from its starting position?

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Draw a diagram (west is negative)

$$-10\ mi. + 2\ mi. - 5\ mi. = -13\ mi.$$

13 miles to the west

0-03 Solve Absolute Value Equations and Inequalities

Objectives:

- Solve absolute value equations.
- Solve absolute value inequalities.

0-03 Solve Absolute Value Equations and Inequalities

- **Absolute Values**
  - Distance from origin to coordinate
  - In one dimension, turns the number positive

- $| x | = b$
  - Distance between x and 0 is b

- $| x - k | = b$
  - Distance between x and k is b

0-03 Solve Absolute Value Equations and Inequalities

Steps to Solve Absolute Value Equations

1. Write two equations.
   a. One with the absolute value expression positive.
   b. One with the absolute value expression negative.
2. Solve each equation.
3. Check your solutions.

0-03 Solve Absolute Value Equations and Inequalities

- Solve
  - $|x - 3| = 10$
- $|2x + 5| = 3x$

$$x - 3 = 10 \text{ or } -(x - 3) = 10$$
$$x = 13 \text{ or } x - 3 = -10$$
$$x = 13 \text{ or } x = -7$$

$$2x + 5 = 3x \text{ or } -(2x + 5) = 3x$$
$$5 = x \text{ or } 2x + 5 = -3x$$
$$x = 5 \text{ or } 5 = -5x$$
$$x = 5 \text{ or } \cancel{x = -1\ (-1}\ \text{does not check})$$

0-03 Solve Absolute Value Equations and Inequalities

- Solve
  - $|4x - 1| = 2x + 9$

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$$4x - 1 = 2x + 9 \;\rightarrow\; 2x - 1 = 9 \;\rightarrow\; 2x = 10 \;\rightarrow\; x = 5$$

OR

$$-(4x - 1) = 2x + 9 \;\rightarrow\; -4x + 1 = 2x + 9 \;\rightarrow\; -6x + 1 = 9 \;\rightarrow\; -6x = 8 \rightarrow x = -\frac{8}{6}$$
$$= -\frac{4}{3}$$

0-03 Solve Absolute Value Equations and Inequalities

- Solve absolute value inequalities the same as equations
  - Exception: write answer as compound inequality
- Solve
  - | 2x – 7 | > 1
  - | 7 – x | ≤ 4

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$$2x - 7 > 1 \rightarrow 2x > 8 \rightarrow x > 4$$
$$OR$$
$$-(2x - 7) > 1 \rightarrow 2x - 7 < -1 \rightarrow 2x < 6 \rightarrow x < 3$$
$$x < 3 \text{ or } x > 4$$

$$7 - x \le 4 \rightarrow -x \le -3 \rightarrow x \ge 3$$
$$OR$$
$$-(7 - x) \le 4 \rightarrow 7 - x \ge -4 \rightarrow -x \ge -11 \rightarrow x \le 11$$
$$3 \le x \le 11$$

0-03 Solve Absolute Value Equations and Inequalities

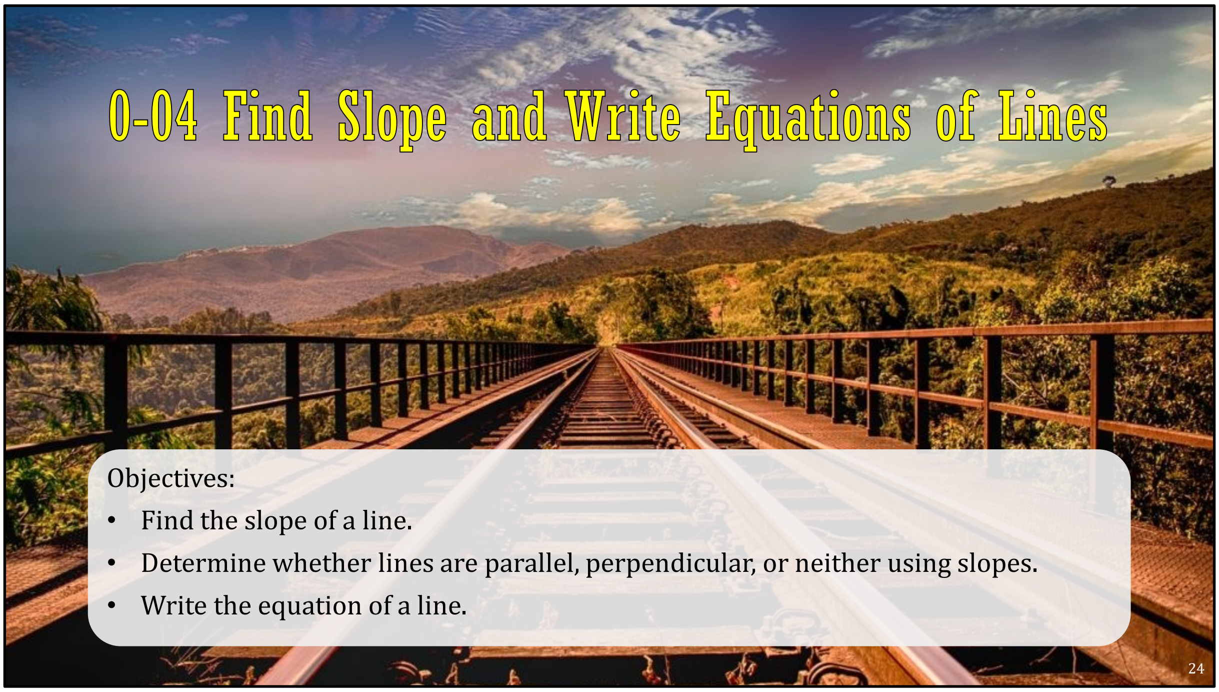
- In manufacturing, tolerance is the amount of allowed difference between the real-life measurement and the standard.

$$|Actual - Standard| \leq Tolerance$$

- Ostrich eggs have an average mass of 1950 grams, with a tolerance of 350 grams. Write and solve an absolute value inequality that describes the mass of ostrich eggs.

The distance between the actual weight and the target weight should be less than or equal to the tolerance.

$$|x - 1950| \leq 350$$
$$x - 1950 \leq 350 \rightarrow x \leq 2300$$
$$OR$$
$$-(x - 1950) \leq 350 \rightarrow x - 1950 \geq -350 \rightarrow x \geq 1600$$
$$1600 \leq x \leq 2300$$



0-04 Find Slope and Write Equations of Lines

Objectives:

- Find the slope of a line.
- Determine whether lines are parallel, perpendicular, or neither using slopes.
- Write the equation of a line.

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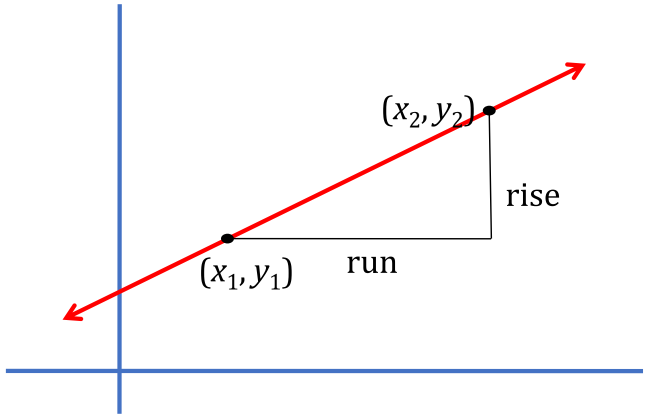
0-04 Find Slope and Write Equations of Lines

$$Slope = \frac{rise}{run}$$

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



Slope is the rate of change

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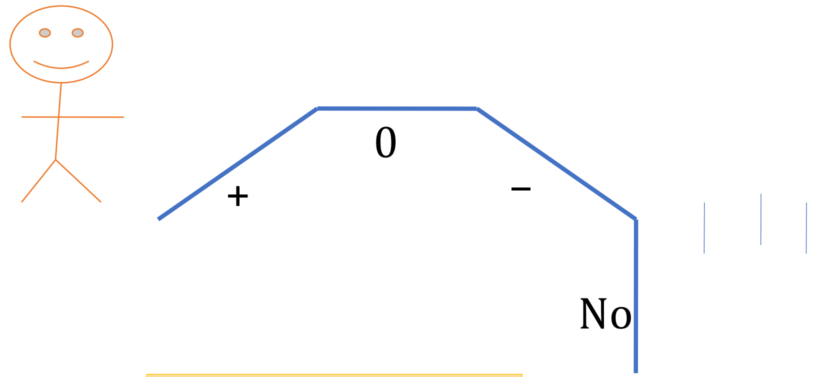
0-04 Find Slope and Write Equations of Lines

- Positive Slope
  - Rises
- Zero Slope
  - Horizontal
- Negative Slope
  - Falls
- No Slope (Undefined)
  - Vertical



There's **<u>No Slope</u>** to stand on.

0-04 Find Slope and Write Equations of Lines

- Find the slope of the line passing through the given points. Classify as *rises*, *falls*, *horizontal*, or *vertical*.
  - (7, 3), (−1, 7)
  - (7, 1), (7, −1)

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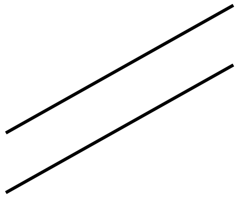
$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{8-3}{4-0} = \frac{5}{4}$; rises

$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{7-3}{-1-7} = \frac{4}{-8} = -\frac{1}{2}$; falls

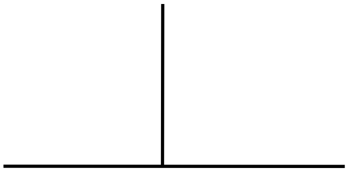
$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-1-1}{7-7} = -\frac{2}{0} =$ undefined; vertical

0-04 Find Slope and Write Equations of Lines

- **Parallel Lines**
  - In the same plane and do not intersect
  - Go the same direction
  - Slopes are the same



- **Perpendicular Lines**
  - Intersect to form a right angle
  - Slopes are negative reciprocals
  - OR Product of slopes is -1
  - $\frac{2}{3}$ and $-\frac{3}{2}$



0-04 Find Slope and Write Equations of Lines

- Tell whether the lines are *parallel*, *perpendicular*, or *neither*.
  - Line 1: through (–2, 8) and (2, –4)
  - Line 2: through (–5, 1) and (–2, 2)

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Line 1: $m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-4 - 8}{2 - (-2)} = -\frac{12}{4} = -3$

Line 2: $m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{2 - 1}{-2 - (-5)} = \frac{1}{3}$

Perpendicular

0-04 Find Slope and Write Equations of Lines

- **Writing Equations of Lines**
- Given slope and *y*-intercept
  - Use slope-intercept form $y = mx + b$
- Any other line
  - Find the slope (m)
  - Find a point the line goes through (x_1, y_1)
  - Use point-slope form $y - y_1 = m(x - x_1)$

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- it passes through (–1, 6) and has a slope of 4.
- it passes through (−1, 2) and (10, 0)

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Given slope and point

$$y - y_1 = m(x - x_1)$$
$$y - 6 = 4\big(x - (-1)\big)$$
$$y - 6 = 4x + 4$$
$$y = 4x + 10$$

Given two points

$$m = \frac{y_2 - y_2}{x_2 - x_1} = \frac{0 - 2}{10\ -\ (-1)} = -\frac{2}{11}$$
$$y - y_1 = m(x - x_1)$$
$$y - 0 = -\frac{2}{11}(x - 10)$$
$$y = -\frac{2}{11}x + \frac{20}{11}$$

0-04 Find Slope and Write Equations of Lines

- In a chemistry experiment, you record the temperature to be −5 °F one minute after you begin. Six minutes after you begin the temperature is 20 °F. Write a linear equation to model this.

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Two points: (1, -5), (6, 20)

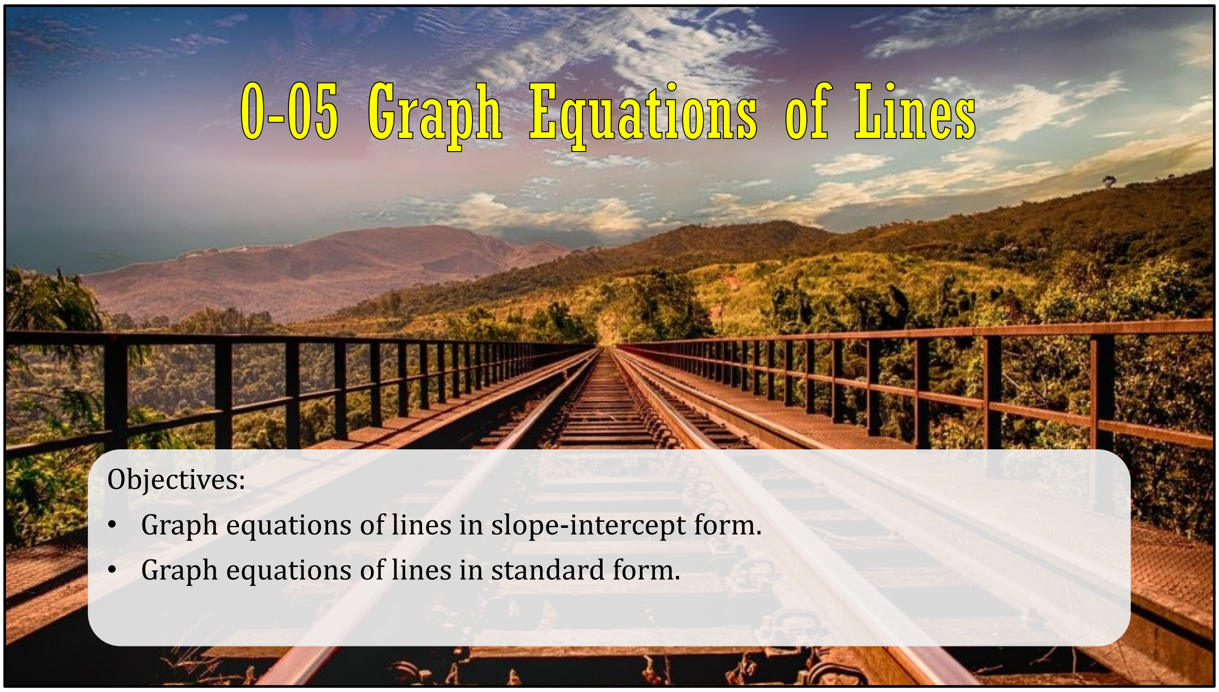
$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{20 - (-5)}{6 - 1} = \frac{25}{5} = 5$$

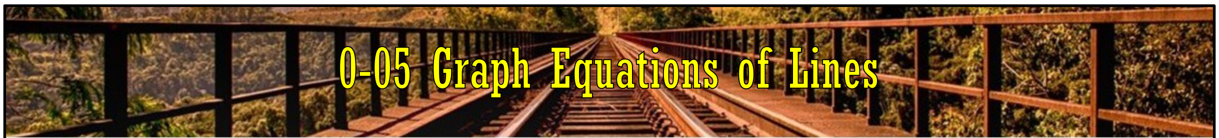
$$y - y_1 = m(x - x_1)$$

$$y - (-5) = 5(x - 1)$$

$$y + 5 = 5x - 5$$

$$y = 5x - 10$$


0-05 Graph Equations of Lines
Objectives:
• Graph equations of lines in slope-intercept form.
• Graph equations of lines in standard form.



0-05 Graph Equations of Lines

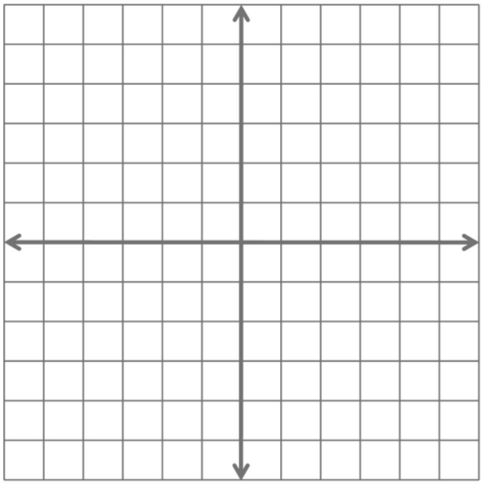
- The simplest way **to graph**
  - Make a table

1. Choose a reasonable range of x values usually including negatives.
2. Substitute each x value into the function to find the corresponding y value.
3. Plot the points on a coordinate plane.
4. Draw the line through the points.

Making a table always works to graph functions

0-05 Graph Equations of Lines

- Graph $y = x^2 - 3$



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Make a table

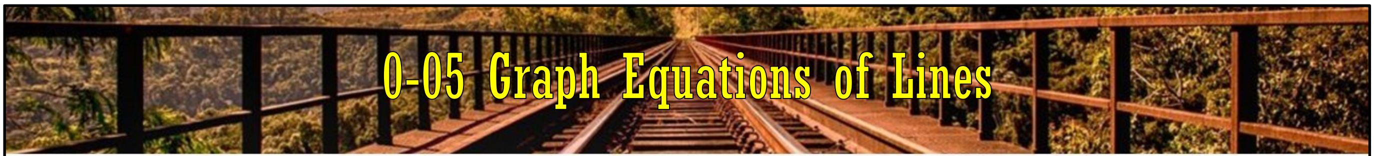
x	-3	-2	-1	0	1	2	3
y	6	1	-2	-3	-2	1	6

Graph the points and draw a curve

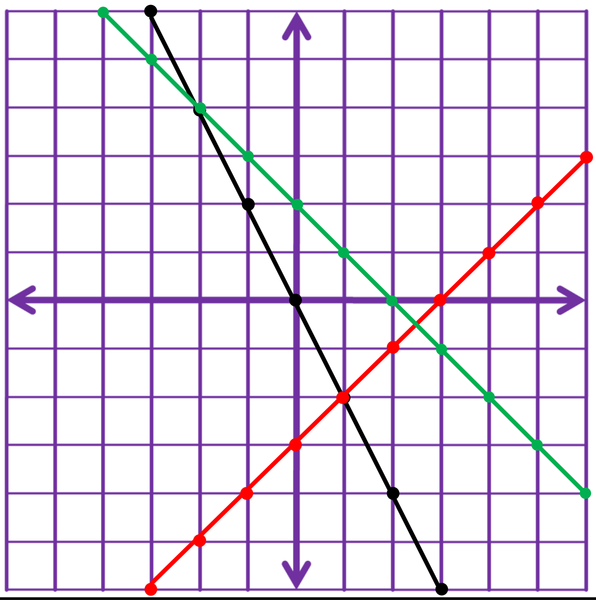
0-05 Graph Equations of Lines

- **Slope-intercept form**
  - $y = mx + b$
    - m is slope
    - b is y-intercept
- **To graph**
  1. Solve equation for y
  2. Plot the y-intercept
  3. From there move up and over the slope to find another couple of points
  4. Draw a line neatly through the points

y-intercept is where the line crosses the y-axis



- Graph
  - $y = -2x$
  - $y = x - 3$
  - $f(x) = 2 - x$



$$y = -2x + 0$$

$$m = -2 = -\frac{2}{1};\ b = 0$$

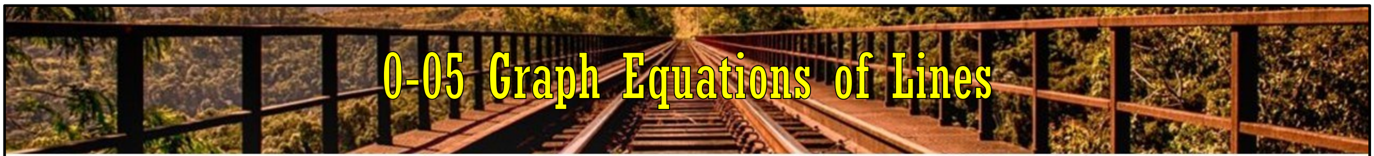
$$y = x - 3$$

$$m = 1 = \frac{1}{1}; b = -3$$

$$f(x) = 2 - x$$

$$f(x) = -x + 2$$

$$m = -1 = -\frac{1}{1}; b = 2$$



0-05 Graph Equations of Lines

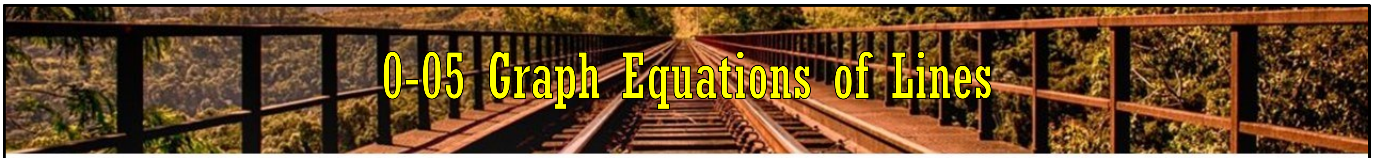
- **Standard Form**
  - Ax + By = C
    - A, B, and C are integers
- **To graph**
  1. Find the x- and y-intercepts by letting the other variable = 0
  2. Plot the two points
  3. Draw a line through the two points

- x-intercept:
- Ax + B(0) = C
- Ax = C
- $x = \frac{C}{A}$

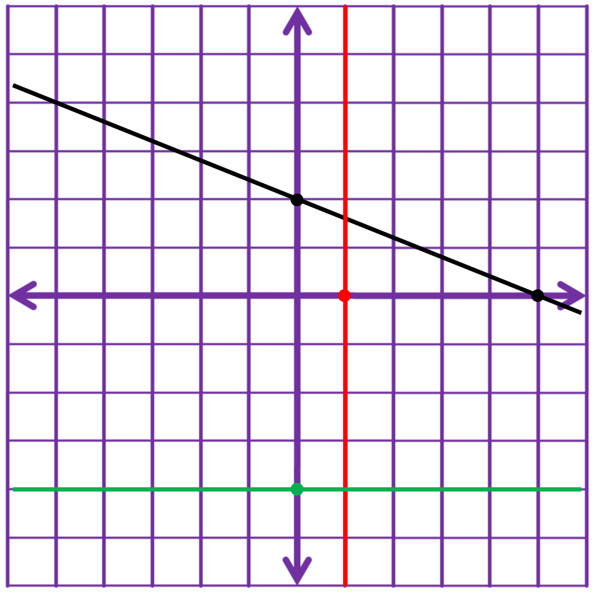
- y-intercept:
- A(0) + By = C
- By = C
- $y = \frac{C}{B}$

0-05 Graph Equations of Lines

- **Horizontal Lines**
  - $y = c$
- **Vertical Lines**
  - $x = c$



- Graph
  - $2x + 5y = 10$
  - $x = 1$
  - $y = -4$



x-int: $2x + 5(0) = 10 \rightarrow 2x = 10 \rightarrow x = 5$; (5, 0)
y-int: $2(0) + 5y = 10 \rightarrow 5y = 10 \rightarrow y = 2$; (0, 2)

Vertical line
x-int: (1, 0)

Horizontal line
y-int: (0, −4)

0-06 Graph Absolute Value Functions and Transformations

Objectives:
- Graph absolute value functions.
- Describe transformations of functions.

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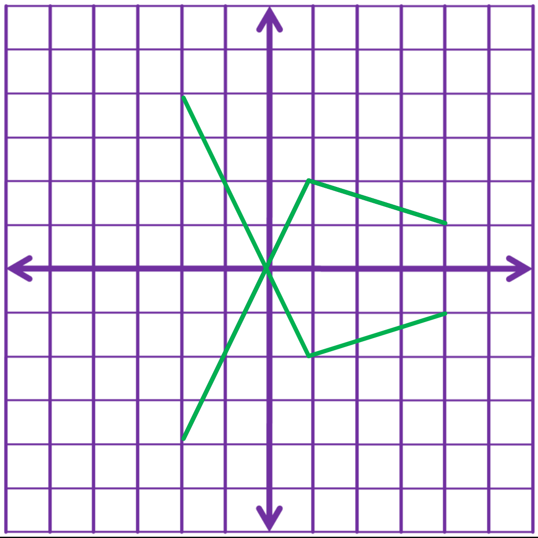
0-06 Graph Absolute Value Functions and Transformations

- $f(x) = a \cdot f(x - h) + k$

- **Transformations** (changes to graph's size, shape, position, or orientation)
  - Stretch/Shrink
    - a is the factor the graph is stretched or shrunk vertically
    - Multiply the y-coordinates by a
  - Reflection → Flips the graph over a line
    - If a is negative, the graph will be flipped over the x-axis
  - Translation → moves graph
    - h is how far graph moves to right
    - k is how far graph moves up
  - Apply stretch/shrinks and reflections before translations
    - Multiply before adding

0-06 Graph Absolute Value Functions and Transformations

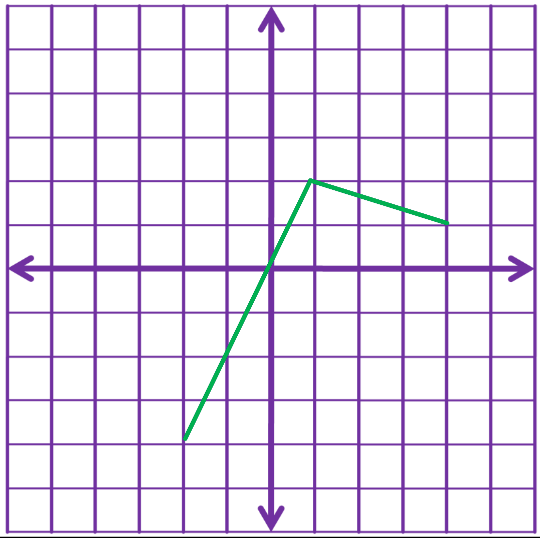
- The graph of $f(x)$ is given. Sketch the following functions.
  - $y = -\frac{1}{2} f(x)$



Reflected over the x-axis because of the -, shrunk vertically by factor of ½ because of the ½.
Reflect the graph over the x-axis first.
Make the distance from each point to the x-axis half the distance.

0-06 Graph Absolute Value Functions and Transformations

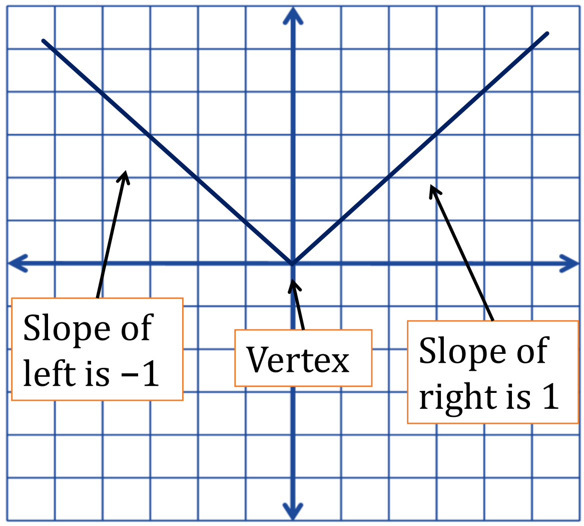
- The graph of $f(x)$ is given. Sketch the following functions.
  - $y = f(x - 1) + 3$



h = 1 and *k* = 3, so translated right 1 and up 3.

0-06 Graph Absolute Value Functions and Transformations

- **Absolute Value Function**
  - $f(x) = a|x - h| + k$
  - Simplest $y = |x|$

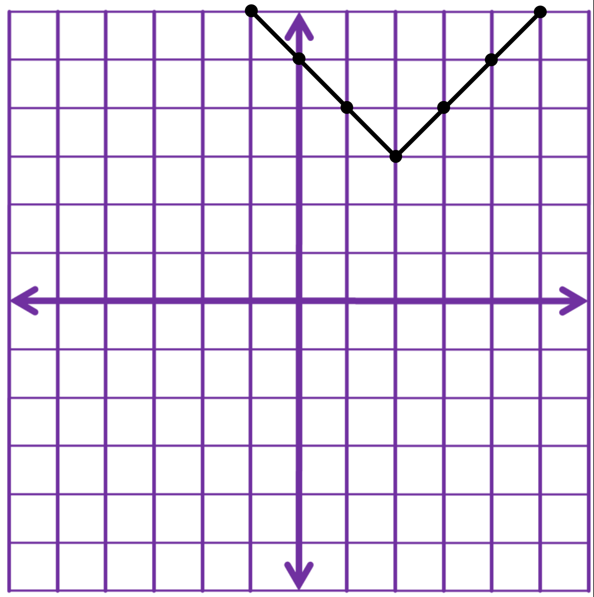


To graph an absolute value graph,

- Make a table of values,
- OR
  - plot the vertex (h, k)
  - follow a slope of a on the right and $-a$ on the left.

0-06 Graph Absolute Value Functions and Transformations

- Graph and compare with $y = |x|$
  - $y = |x - 2| + 3$



$$y = a|x - h| + k$$
$$y = |x - 2| + 3$$

h = 2, k = 3

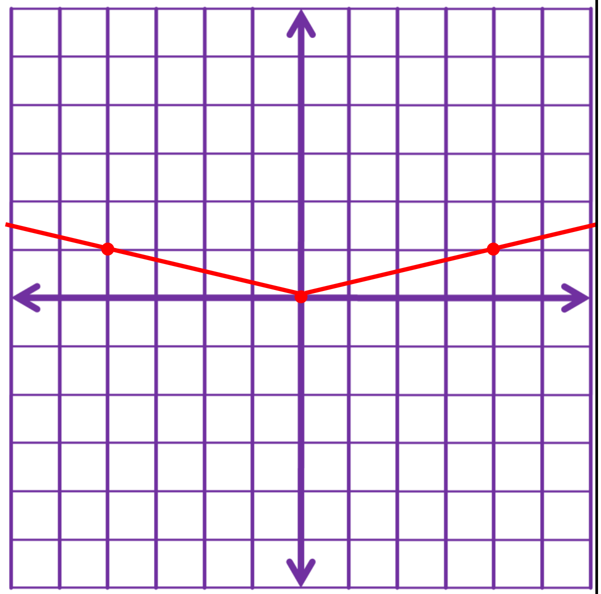
Translated 2 right and 3 up. The vertex will be (h, k) = (2, 3)

a = 1

The slope of the right side will be 1. (**Translated 2 right and 3 up.**)

0-06 Graph Absolute Value Functions and Transformations

- Graph and compare with $y = |x|$
  - $y = \frac{1}{4}|x|$



$$y = a|x - h| + k$$

$$y = \frac{1}{4}|x|$$

h = 0, k = 0 since they are missing

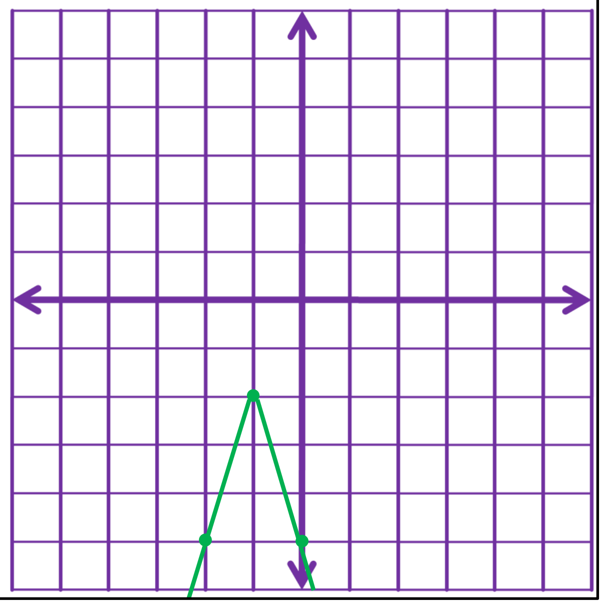
Not translated. The vertex will be (h, k) = (0, 0)

$a = \frac{1}{4}$

The slope of the right side will be 1/4. (**Shrunk vertically by factor of ¼.**)

0-06 Graph Absolute Value Functions and Transformations

- Graph and compare with $y = |x|$
  - $y = -3|x+1| - 2$

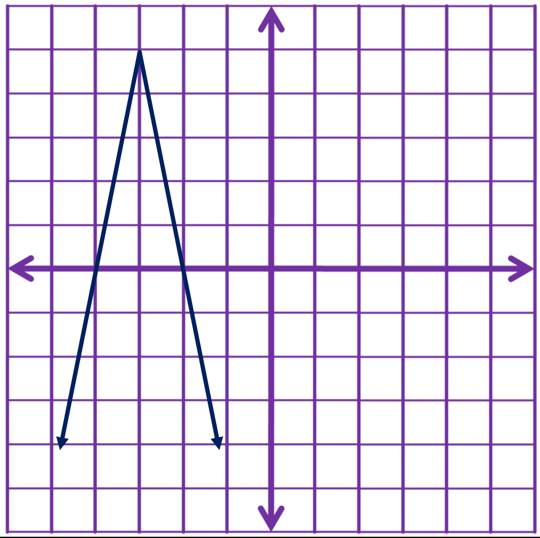


$$y = a|x - h| + k$$
$$y = -3|x + 1| - 2$$

h = -1, *k* = -2
Translated 1 left and 2 down. The vertex will be (*h*, *k*) = (-1, -2)
a = -3
The slope of the right side will be -3. (**Reflected over the x-axis, stretched by factor of 3, translated 1 left and 2 down.**)

0-06 Graph Absolute Value Functions and Transformations

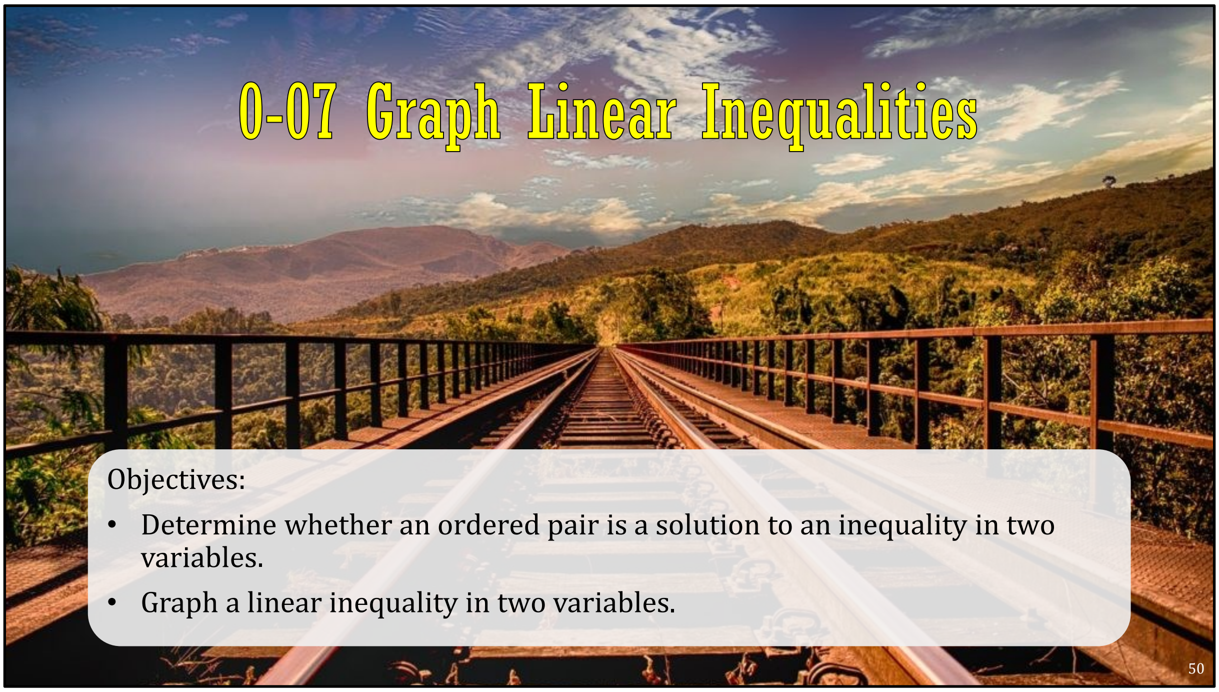
- Write an absolute value equation for the given graph.



Vertex is at (-3, 5), so *h* = -3 and *k* = 5.

The slope of the right side is $-\frac{5}{1} = -5$, so *a* = -5

$$y = a|x - h| + k$$
$$y = -5\,|x + 3| + 5$$


0-07 Graph Linear Inequalities
Objectives:
• Determine whether an ordered pair is a solution to an inequality in two variables.
• Graph a linear inequality in two variables.
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0-07 Graph Linear Inequalities

- Linear Inequality in two variables
  - Like linear equation, but with inequality instead of =
- Tell whether the given ordered pair is a solution of $5x - 2y \leq 6$
  - $(0, -4)$
  - $(-3, 8)$

$$5x - 2y \leq 6$$
$$5(0) - 2(-4) \leq 6$$
$$8 \leq 6$$

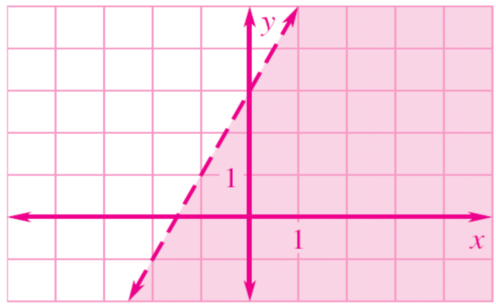
Not true, so **not** a solution

$$5x - 2y \leq 6$$
$$5(-3) - 2(8) \leq 6$$
$$-15 - 16 \leq 6$$
$$-31 \leq 6$$

True, so it **is** a solution

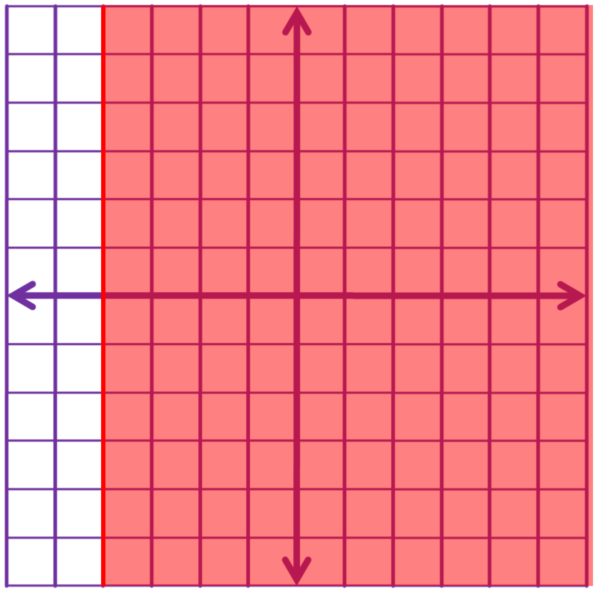
0-07 Graph Linear Inequalities

- **Graphing a linear inequality**
  1. Graph the line as if it was =
  2. Dotted or Solid line
     - Dotted if <, >
     - Solid if ≤, =, ≥
  3. Shade
     - Test a point not on the line
     - If the point is a solution, shade that side of the line
     - If the point is not a solution, shade the other side of the line



0-07 Graph Linear Inequalities

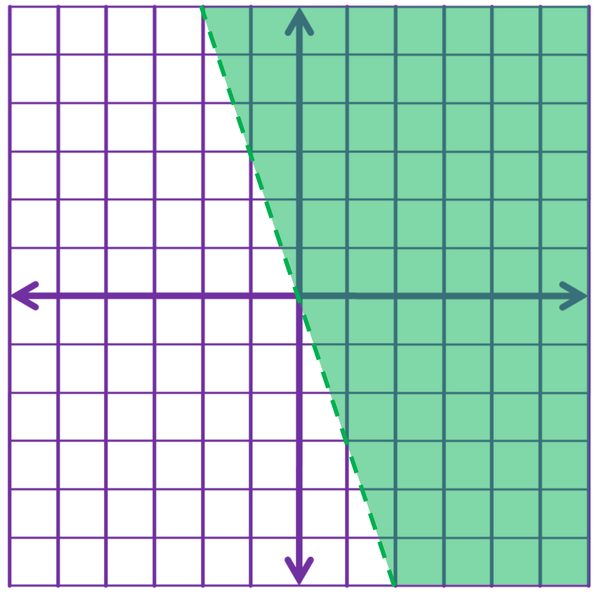
- Graph
  - $x \geq -4$



Graph the line: Vertical line at $x = -4$.
Solid because equal to.
Shade the right because that is where the x's are bigger than −4.

0-07 Graph Linear Inequalities

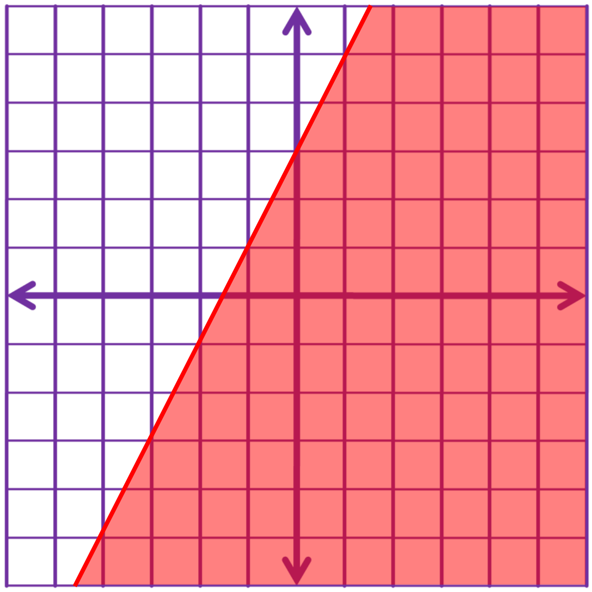
- Graph
  - $y > -3x$



Graph line: y-int = 0, slope = −3.
Dotted because not equal to.
Pick (1, 0) as test point. $y > -3x \rightarrow 0 > -3(1) \rightarrow 0 > -3$. This is true so shade that side of the line.

0-07 Graph Linear Inequalities

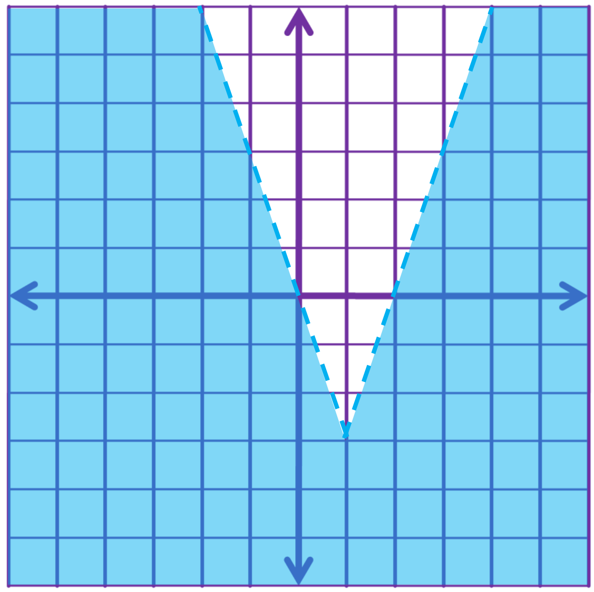
- Graph
  - $y \leq 2x + 3$



Graph the line: y-int = 3, slope = 2.
Solid because equal to.
Pick (0, 0) as test point. $y \leq 2x + 3 \rightarrow 0 \leq 2(0) + 3 \rightarrow 0 \leq 3$. This is true so shade that side of the line.

0-07 Graph Linear Inequalities

- Graph
  - $y < 3|x - 1| - 3$



Graph the absolute value: $h = 1$, $k = -3$, $a = 3$
Dotted because not equal to.
Pick (1, 0) as test point. $y < 3|x - 1| - 3 \rightarrow 0 < 3|1 - 1| - 3 \rightarrow 0 < -3$. This is false so shade the other side of the line.

0-07 Graph Linear Inequalities

- You have two part-time summer jobs, one that pays \$9 an hour and another that pays \$12 an hour. You would like to earn at least \$240 a week. Write an inequality describing the possible amounts of time you can schedule at both jobs.

Rate problem: rate × amount = total

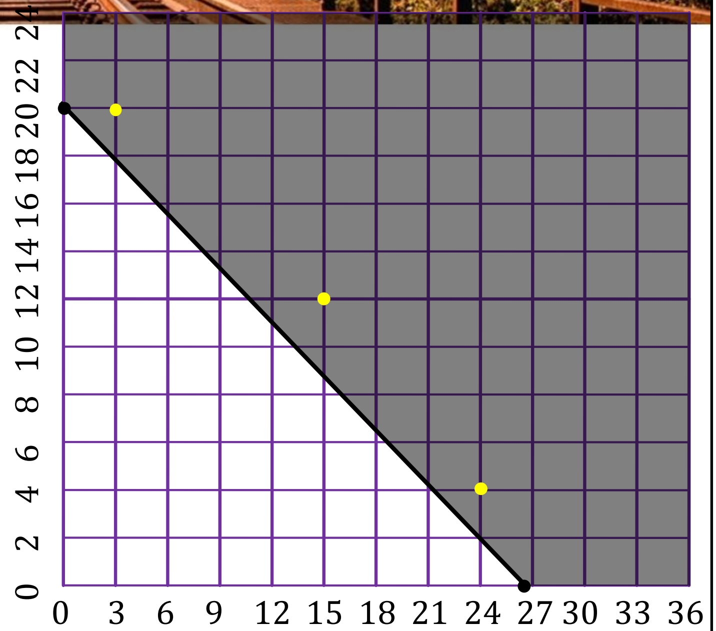
$$9x + 12y \geq 240$$

Greater than sign because the 240 is the smallest we want, so the small side of the sign is pointed at 240.

0-07 Graph Linear Inequalities

- Graph the previous answer

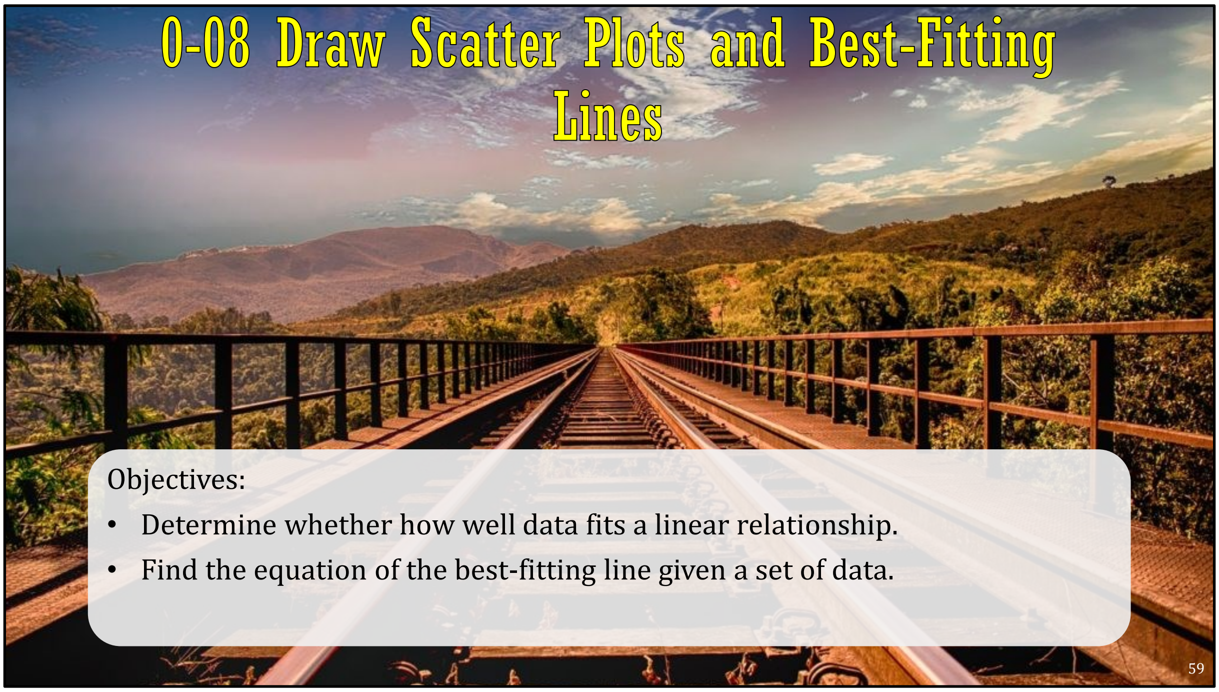
- Identify three possible solutions of the inequality



$$9x + 12y \geq 240$$

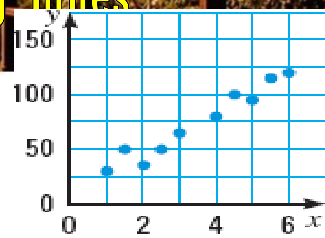
Graph the line: This is in standard form, so find the intercepts.
x-int: $9x + 12(0) = 240 \rightarrow x \approx 26.7$
y-int: $9(0) + 12y = 240 \rightarrow y = 20$
Solid line because equal to.
Test (0, 0). $9x + 12y \geq 0 \rightarrow 9(0) + 12(0) \geq 240 \rightarrow 0 \geq 240$. This is false, so shade the other side of the line.

Pick any three points in the shaded area.
Sample Answers: (15, 12), (24, 4), (3, 20)

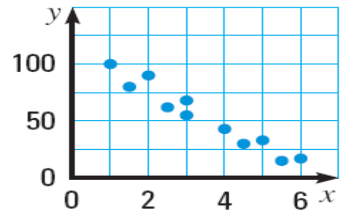

0-08 Draw Scatter Plots and Best-Fitting Lines
Objectives:
• Determine whether how well data fits a linear relationship.
• Find the equation of the best-fitting line given a set of data.
59

0-08 Draw Scatter Plots and Best-Fitting Lines

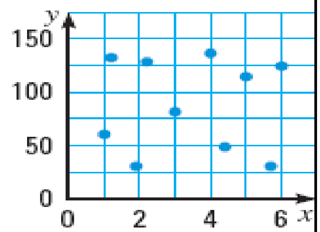
- **Scatter Plot**
  - Graph of many data points



- Positive Correlation
  - The slope of the scatter plot tends to be positive



- Negative Correlation
  - The slope of the scatter plot tends to be negative



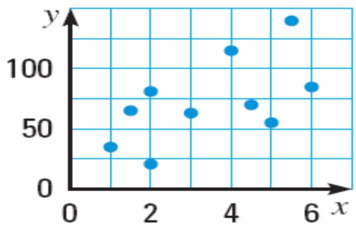
- No Correlation
  - There is no obvious pattern from the scatter plot

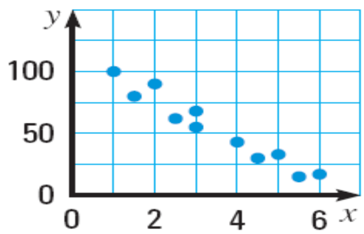
0-08 Draw Scatter Plots and Best-Fitting Lines

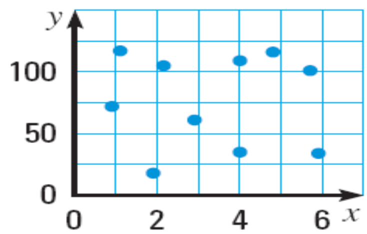
- Correlation Coefficient (*r*)
  - Number between −1 and 1 that measures how well the data fits a line.
  - Positive for positive correlation, negative for negative
  - *r* = 0 means there is no correlation

0-08 Draw Scatter Plots and Best-Fitting Lines

- For each scatter plot, (a) tell whether the data have a positive correlation, a negative correlation, or approximately no correlation, and (b) tell whether the correlation coefficient is closest to –1, –0.5, 0, 0.5, or 1.







Positive, $r \approx 0.5$

Negative, $r \approx -1$

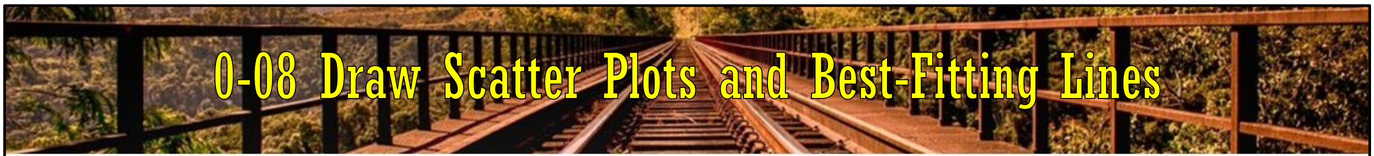
No correlation, $r \approx 0$

0-08 Draw Scatter Plots and Best-Fitting Lines

- **Best-fitting line**
  - Line that most closely approximates the data

- **Find the best-fitting line**
  1. Draw a scatter plot of the data
  2. Sketch the line that appears to follow the data the closest
     - There should be about as many points below the line as above
  3. Choose two points on the line and find the equation of the line
     - These do not have to be original data points

See example 4 in the textbook to see how to do this on a TI graphing calculator



- Monarch Butterflies: The table shows the area in Mexico used by Monarch Butterflies to spend winter, y, in acres x years after 2006.
- Approximate the best-fitting line for the data.
- Use your equation from part (a) to predict the area used by the butterflies in 2016.

x	0	1	2	3	4	5	6	7
y	16.5	11.4	12.5	4.7	9.9	7.1	2.9	1.7

Sample Answer: $y = -1.89x + 14.97$

Sample Answer:
$y = -1.89(10) + 14.97 = -3.93$ acres (they would be gone, extinct!)

0-08 Draw Scatter Plots and Best-Fitting Lines

- **Finding Linear Regression on a TI-84**

1. Push STAT and select Edit….
2. Enter the *x*-values in List 1 (L1) and the *y*-values in List 2 (L2).
3. To see the graph of the points
   a. Push Y= and clear any equations.
   b. While still in Y=, go up and highlight Plot1 and press ENTER.
   c. Press ZOOM and select ZoomStat.
4. Push STAT and move over to the CALC menu.
5. Select LinReg(ax+b) (Linear Regression).
6. Make sure the Xlist: is L1,the Ylist: is L1, the FreqList: is blank, and the Store RegEQ: is Y1.
   a. Get Y1 by pressing VARS and select Y-VARS menu.
   b. Select Function….
   c. Select Y1.
7. Press Calculate

- The calculator will display the equation. To see the graph of the points and line, press GRAPH.

Note: Older TI graphing calculators do not have the screen in steps 6 and 7. After selecting the LinReg(ax+b), the screen just shows "LinReg(ax+b)". Press ENTER again to see the result. To see the graph, enter the equation into the Y= screen and press GRAPH.

0-08 Draw Scatter Plots and Best-Fitting Lines

- **Finding Linear Regression on a NumWorks graphing calculator**

1. On the home screen select Regression.
2. In the Data tab, enter the points.
3. Move to the Graph tab.
4. The default is a linear regression and is displayed at the bottom of the screen. To change the regression type
    a. Press OK.
    b. Select Regression.
    c. Select the desired regression type