



- 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:

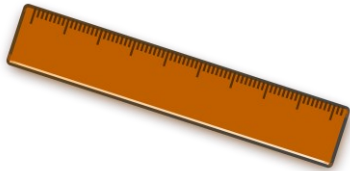
- Solve linear equations.
- Solve linear inequalities.
- Solve a linear formula for a variable.

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.



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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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$$\begin{aligned}2x + 5y &= 12 \\5y &= 12 - 2x \\y &= \frac{12 - 2x}{5}\end{aligned}$$

$$\begin{aligned}3rh + 5h &= 7 \\h(3r + 5) &= 7 \\h &= \frac{7}{3r + 5}\end{aligned}$$



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?

Total money = base salary + commission percent · 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 $C = 2\pi r$

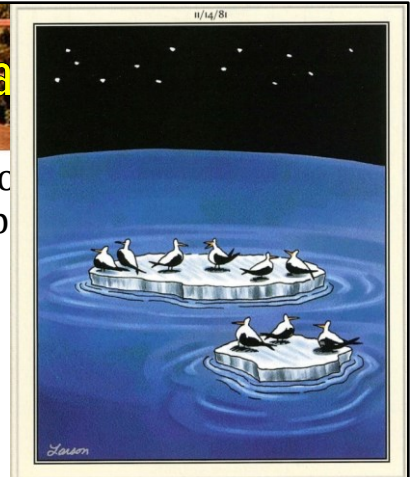


0-02 Use Problem Solving Strategies and Models

- 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 arctic tern flies an average speed of 16.7 miles per hour. How long would it take to fly from its winter grounds in Antarctica to its breeding grounds in Greenland, a distance of 12000 miles?



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



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$$\text{Distance} = \text{rate} \cdot \text{time}$$

$$12000 \text{ mi} = 16.7 \frac{\text{mi}}{\text{hr}} \cdot t$$

$$t = 719 \text{ hr} = 29.9 \text{ days}$$

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



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

$$\text{Height} = \text{initial height} - \text{rate} \cdot \text{time}$$

$$h = 2400 \text{ ft} - 210 \frac{\text{ft}}{\text{min}} \cdot 8 \text{ min}$$

$$h = 720 \text{ ft}$$

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)

$$-10 \text{ mi.} + 2 \text{ mi.} - 5 \text{ mi.} = -13 \text{ mi.}$$

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

• $|x - 3| = 10$

• $|2x + 5| = 3x$

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

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

$$x = 13 \text{ or } x = -7$$

$$2x + 5 = 3x \text{ or } -(2x + 5) = 3x$$

$$5 = x \text{ or } 2x + 5 = -3x$$

$$x = 5 \text{ or } 5 = -5x$$

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

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

$$\begin{aligned} -(4x - 1) &= 2x + 9 \rightarrow -4x + 1 = 2x + 9 \rightarrow -6x + 1 = 9 \rightarrow -6x = 8 \rightarrow x = -\frac{8}{6} \\ &= -\frac{4}{3} \end{aligned}$$

0-03 Solve Absolute Value Equations and Inequalities

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

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$$\begin{aligned}2x - 7 > 1 &\rightarrow 2x > 8 \rightarrow x > 4 \\ &OR \\ -(2x - 7) > 1 &\rightarrow 2x - 7 < -1 \rightarrow 2x < 6 \rightarrow x < 3 \\ &x < 3 \text{ or } x > 4\end{aligned}$$
$$\begin{aligned}7 - x \leq 4 &\rightarrow -x \leq -3 \rightarrow x \geq 3 \\ &OR \\ -(7 - x) \leq 4 &\rightarrow 7 - x \geq -4 \rightarrow -x \geq -11 \rightarrow x \leq 11 \\ &3 \leq x \leq 11\end{aligned}$$

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.

$$|\text{Actual} - \text{Standard}| \leq \text{Tolerance}$$

- 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.

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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

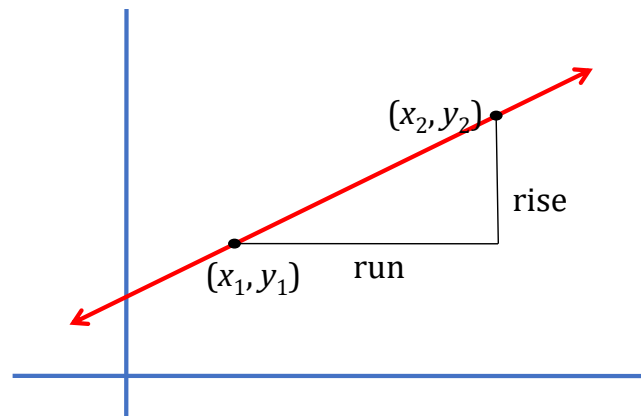
Objectives:

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

0-04 Find Slope and Write Equations of Lines

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

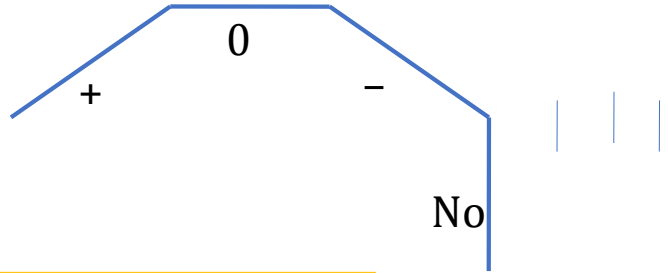
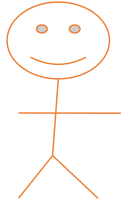
$$m = \frac{y_2 - y_1}{x_2 - x_1}$$



Slope is the rate of change

0-04 Find Slope and Write Equations of Lines

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



There's **No Slope**
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*.

- $(7, 3), (-1, 7)$

- $(7, 1), (7, -1)$

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

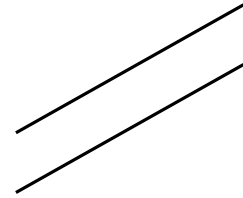
$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{7 - 3}{-1 - 7} = \frac{4}{-8} = -\frac{1}{2}; \text{ falls}$$

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

0-04 Find Slope and Write Equations of Lines

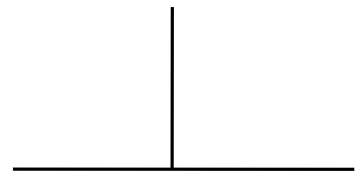
- **Parallel Lines**

- 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 $(-2, 2)$

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

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

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



0-04 Find Slope and Write Equations of Lines

- 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

$$\begin{aligned}y - y_1 &= m(x - x_1) \\y - 6 &= 4(x - (-1)) \\y - 6 &= 4x + 4 \\y &= 4x + 10\end{aligned}$$

Given two points

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



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

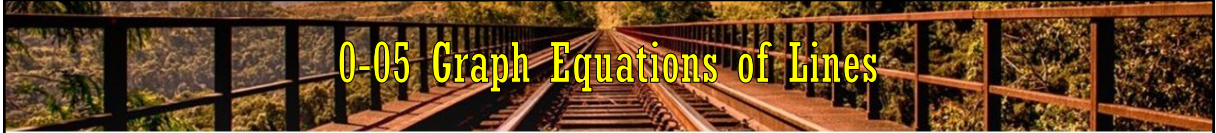
- The simplest way to graph

- 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.

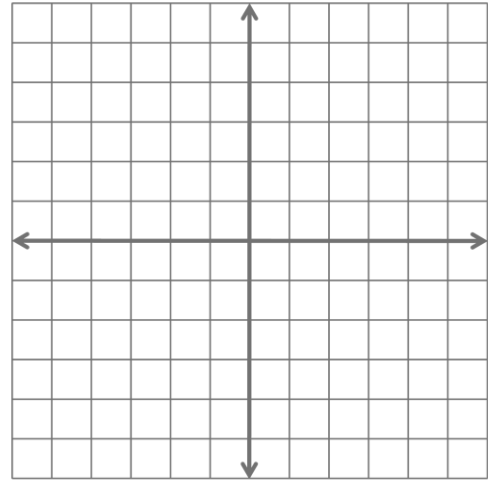
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Making a table always works to graph functions



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

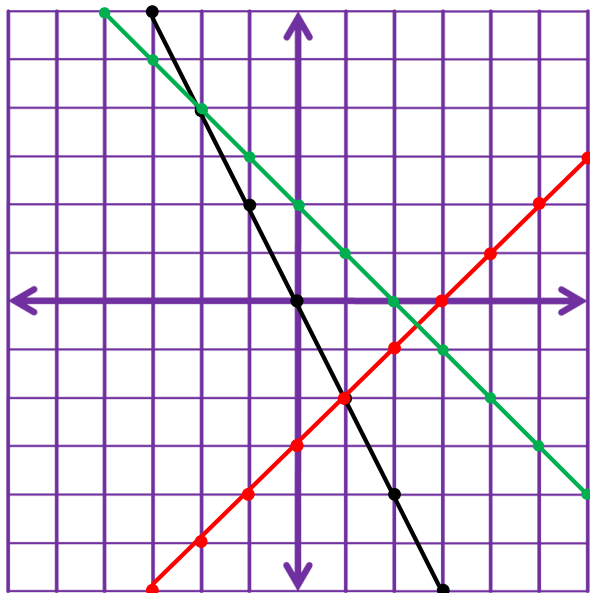
0-05 Graph Equations of Lines

- 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**

- $x = c$

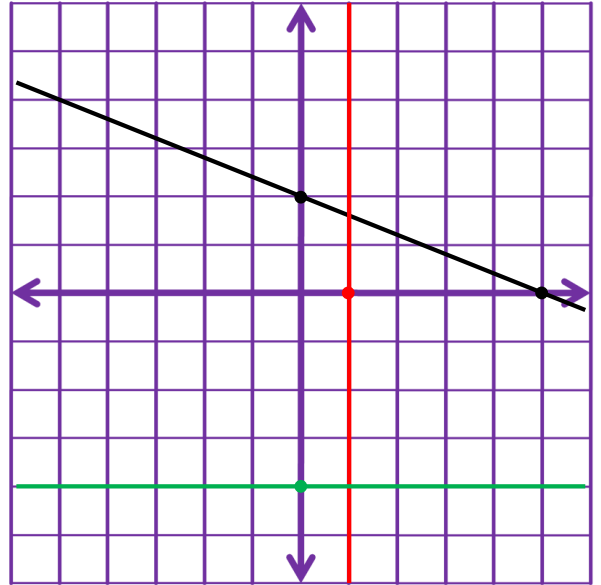
0-05 Graph Equations of Lines

- 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.



0-06 Graph Absolute Value Functions and Transformations

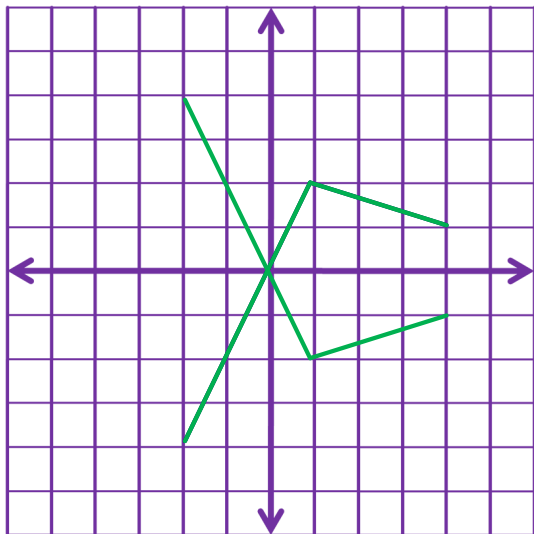
- $f(x) = a \cdot f(x - h) + k$

- 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.

- $y = -\frac{1}{2}f(x)$

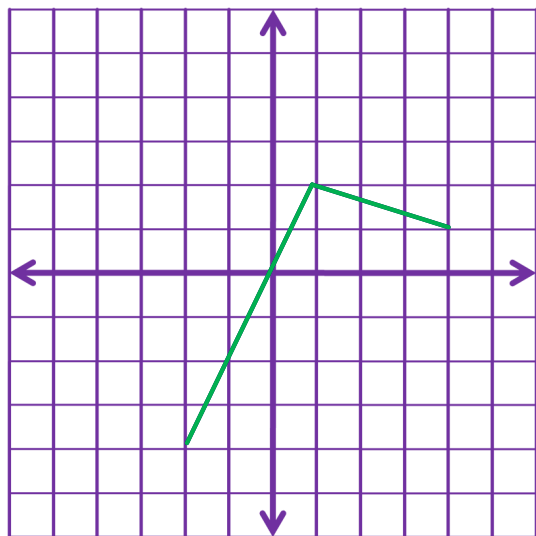


Reflected over the x -axis because of the $-$, shrunk vertically by factor of $\frac{1}{2}$ because of the $\frac{1}{2}$.
Reflect the graph over the x -axis first.
Make the distance from each point to the x -axis half the distance.

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

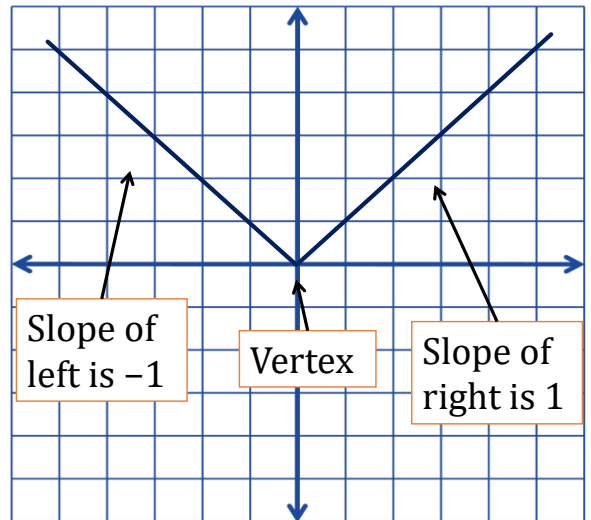
- Absolute Value Function

- $f(x) = a|x - h| + k$

- Simplest $y = |x|$

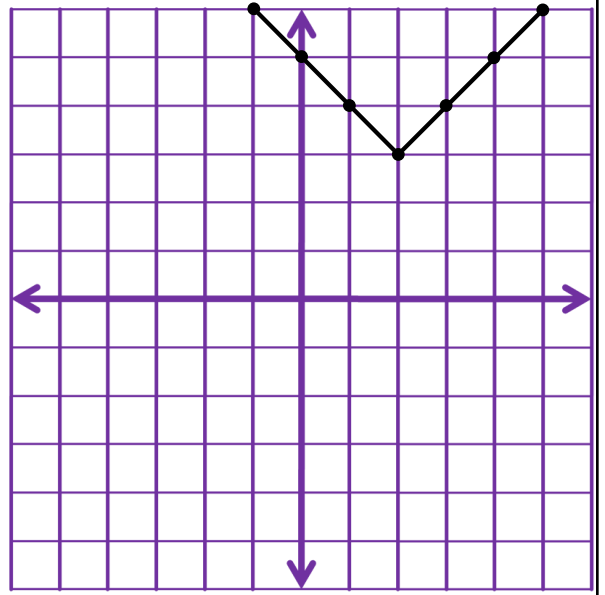
To graph an absolute value graph,

- 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 $(h, k) = (2, 3)$

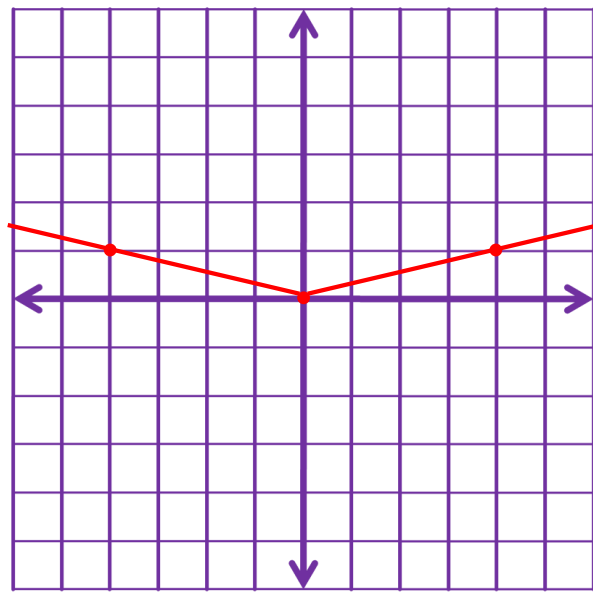
$$a = 1$$

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

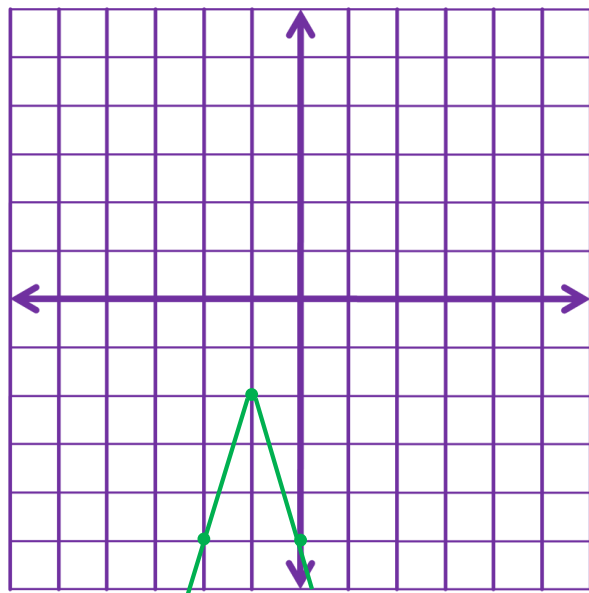
Not translated. The vertex will be $(h, k) = (0, 0)$

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

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

0-06 Graph Absolute Value Functions and Transformations

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



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

$$h = -1, k = -2$$

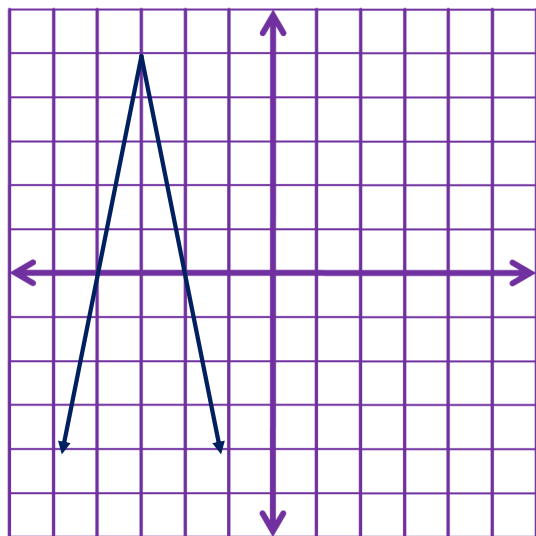
Translated 1 left and 2 down. The vertex will be $(h, k) = (-1, -2)$

$$a = -3$$

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.



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 $5x - 2y \leq 6$
 - $(-3, 8)$
 - $(0, -4)$

$$\begin{aligned}5x - 2y &\leq 6 \\5(0) - 2(-4) &\leq 6 \\8 &\leq 6\end{aligned}$$

Not true, so **not** a solution

$$\begin{aligned}5x - 2y &\leq 6 \\5(-3) - 2(8) &\leq 6 \\-15 - 16 &\leq 6 \\-31 &\leq 6\end{aligned}$$

True, so it **is** a solution

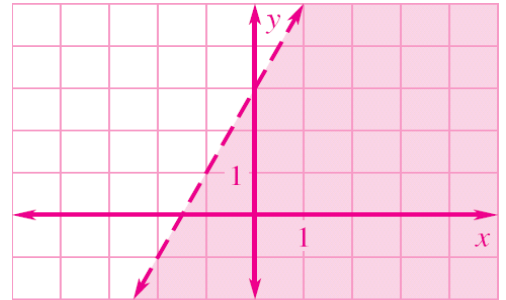
0-07 Graph Linear Inequalities

- Graphing a linear inequality

1. Graph the line as if it was =
2. Dotted or Solid line
 - Dotted if $<$, $>$
 - Solid if \leq , $=$, \geq

3. Shade

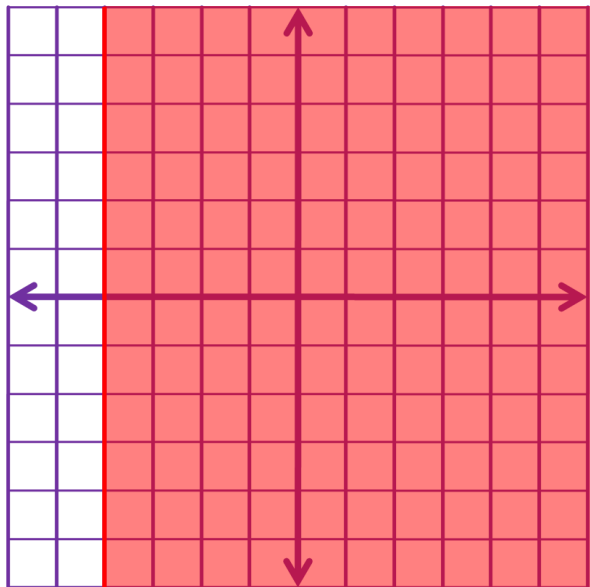
- Test a point not on the line
- If the point is a solution, shade that side of the line
- If the point is not a solution, shade the other side of the line



0-07 Graph Linear Inequalities

- Graph

- $x \geq -4$



Graph the line: Vertical line at $x = -4$.

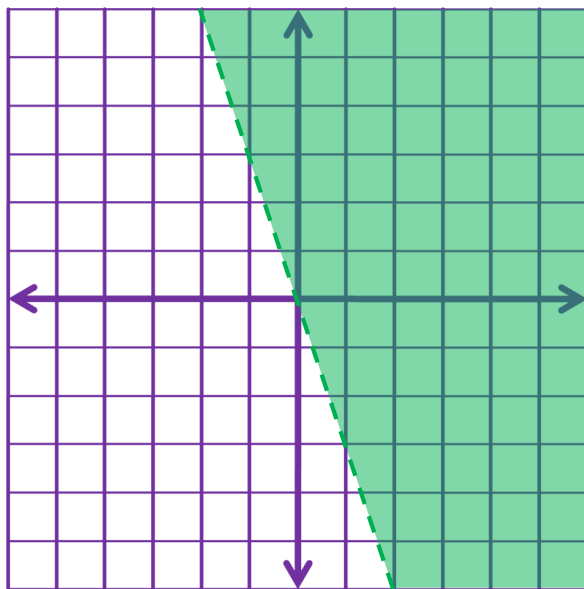
Solid because equal to.

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 .

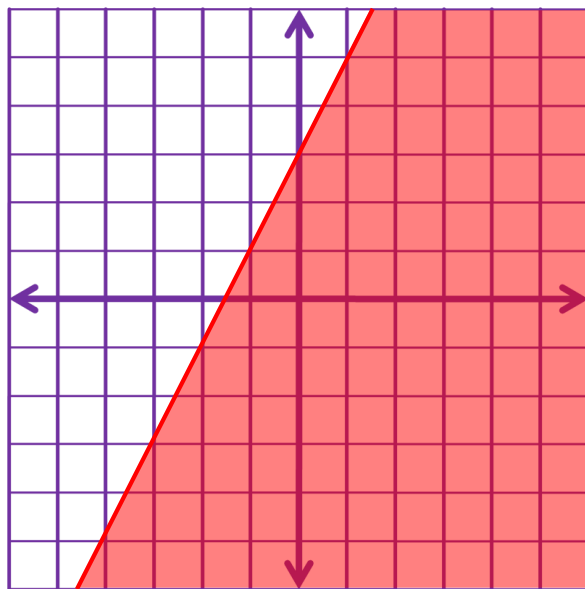
Dotted because not equal to.

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.

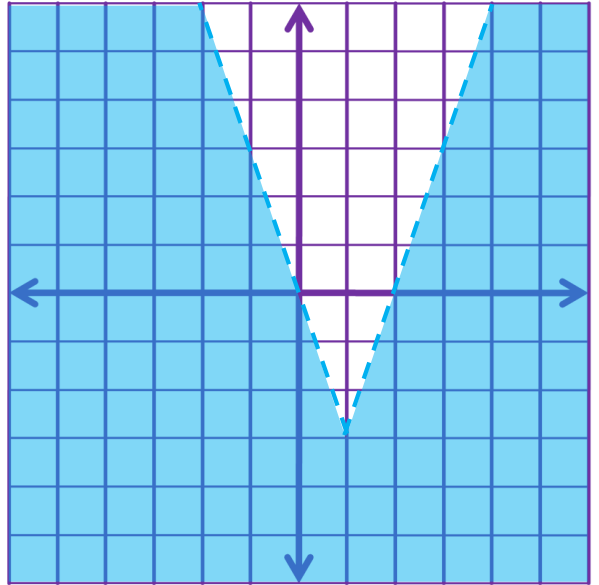
Solid because equal to.

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 \times amount = total

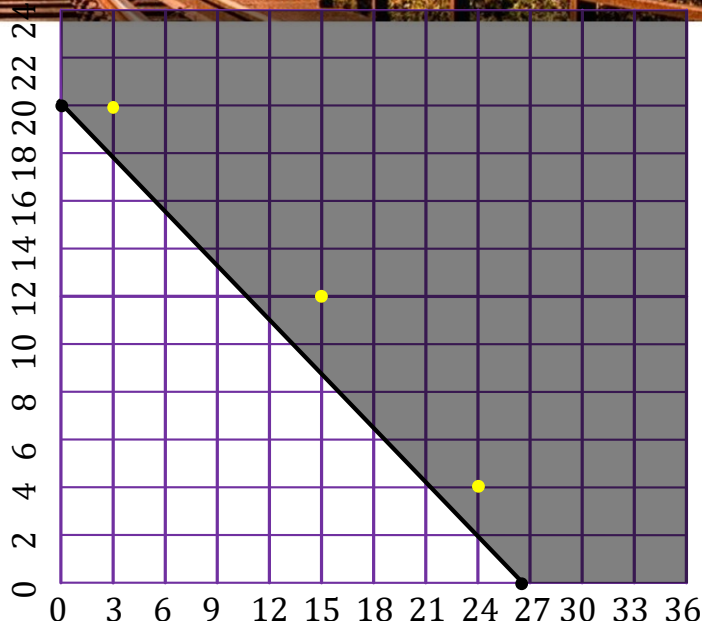
$$9x + 12y \geq 240$$

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.

$$x\text{-int: } 9x + 12(0) = 240 \rightarrow x \approx 26.7$$

$$y\text{-int: } 9(0) + 12y = 240 \rightarrow y = 20$$

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)

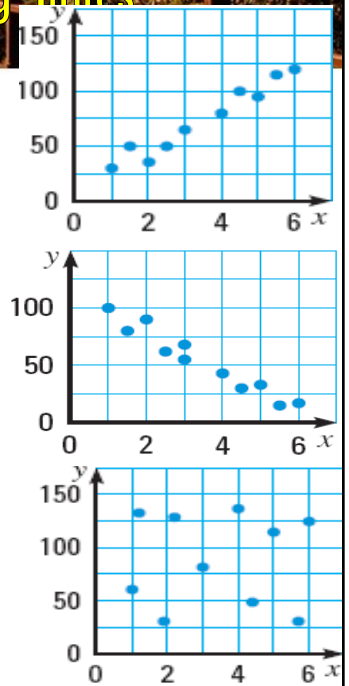
0-08 Draw Scatter Plots and Best-Fitting Lines

Objectives:

- Determine whether how well data fits a linear relationship.
- Find the equation of the best-fitting line given a set of data.

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



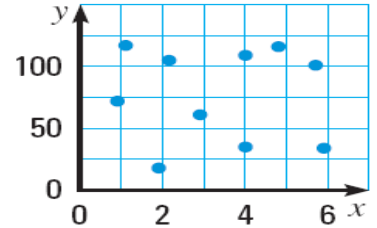
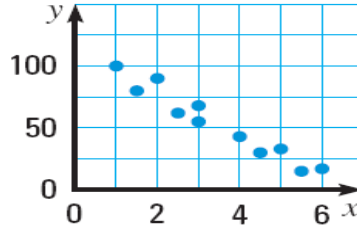
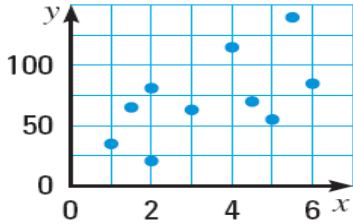


0-08 Draw Scatter Plots and Best-Fitting Lines

- 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

0-08 Draw Scatter Plots and Best-Fitting Lines

- 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: $y = -1.89x + 14.97$

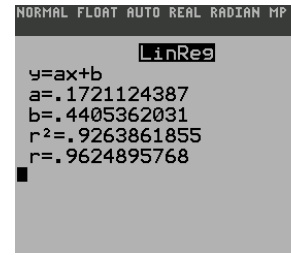
Sample Answer:

$y = -1.89(10) + 14.97 = -3.93$ 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.



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LinReg

y=ax+b
a=.1721124387
b=.4405362031
r²=.9263861855
r=.9624895768

65

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. To set the regression type
 - a. Press \odot or select Regression.
 - b. Select the desired regression type.
 - c. Press \odot or the down arrow and read the equation and correlation coefficient.

