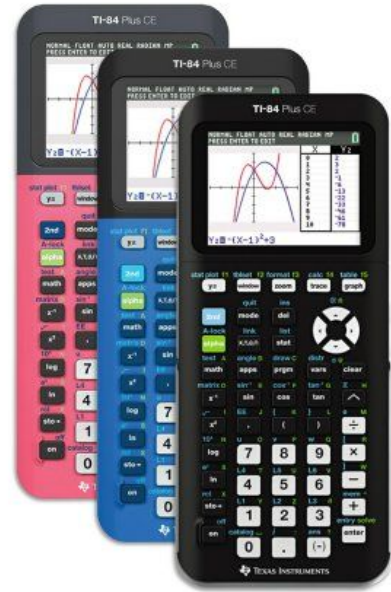


Welcome to math!

1. See if you can remember how to graph the following on your calculator: $y=3x+1$
2. When you graph $y=3x+1$, push 2nd, then TRACE, then select VALUE and then 3. What does the screen say?
3. See if you can figure out how to graph the following on your calculator: $y-3=2(x+4)$
4. Find the value of y when $x =4$.
5. Find the value of y when $x=52$.



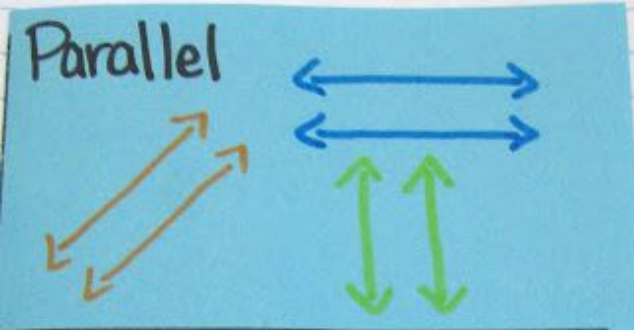
Announcements

- We are starting Unit 6 today!
 - Tuesday 11/13 - Parallel and Perpendicular Lines
 - Wednesday 11/14 - ELA Check-Ins & City Map Project
 - Thursday 11/15 - In Cafeteria - MALM Project, City Map Project, Test Corrections, maybe something else...
 - Friday 11/16 - Scatterplots and Trend Lines - MALM Poster Due
 - Monday 11/19 - Absolute Value Graphs
 - Tuesday - 11/20 - Review
 - *Wednesday 11/21 - Thanksgiving Break!!*
- Return graded items
- Unit 5 is still not graded...I was traveling in VA this weekend!

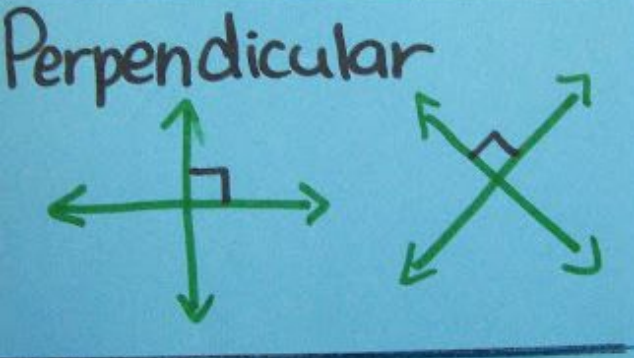


Parallel and Perpendicular Lines

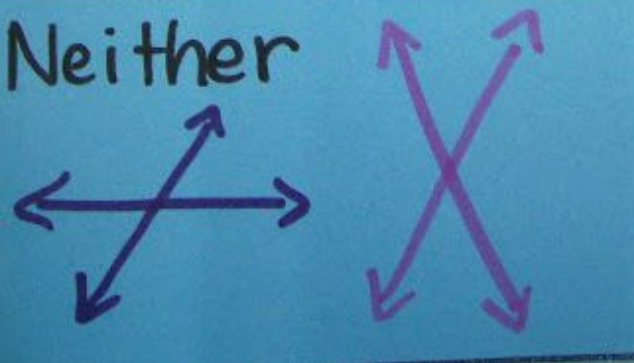
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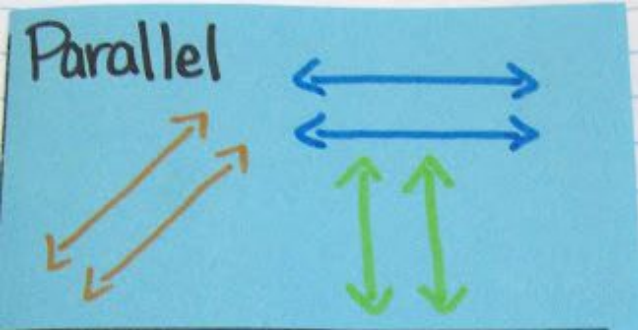
Parallel lines NEVER intersect



Perpendicular lines intersect to form a right angle



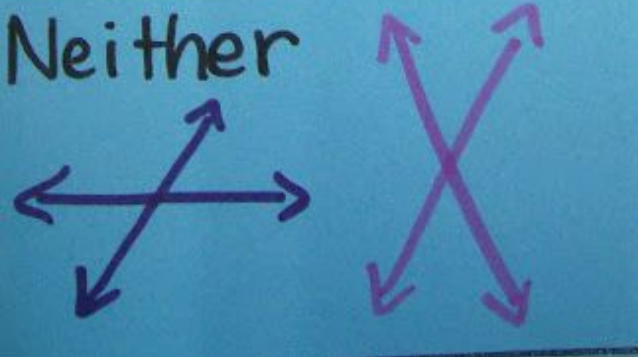
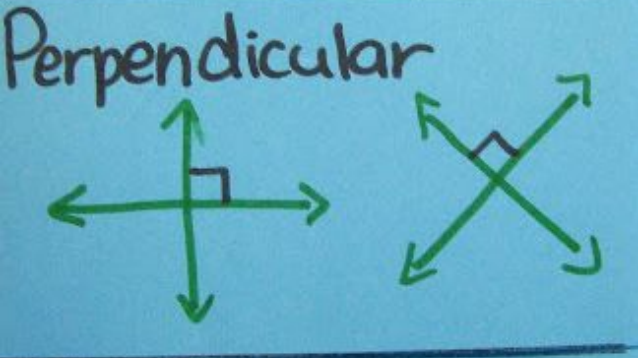
The lines shown here do intersect, but not at a right angle. They are neither parallel nor perpendicular.

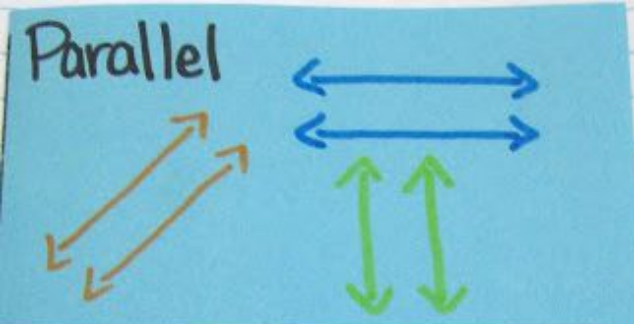


Parallel lines NEVER intersect

Parallel lines have the same slope, but different y intercepts

Ex: $y = \frac{1}{2}x + 3$ and $y = \frac{1}{2}x - 2$

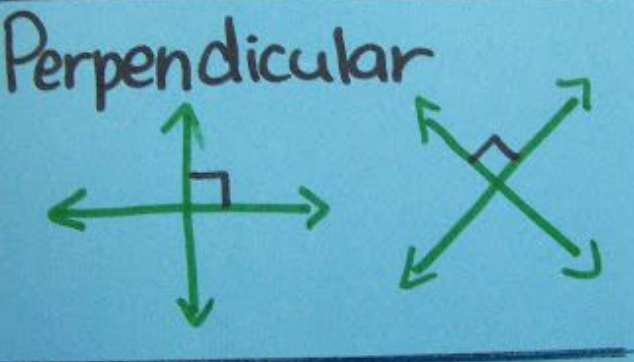




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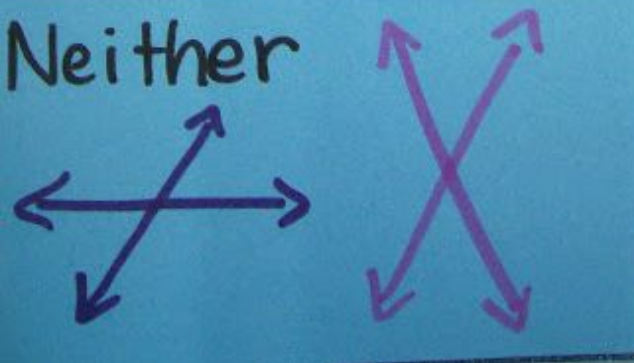


Perpendicular lines intersect to form a right angle

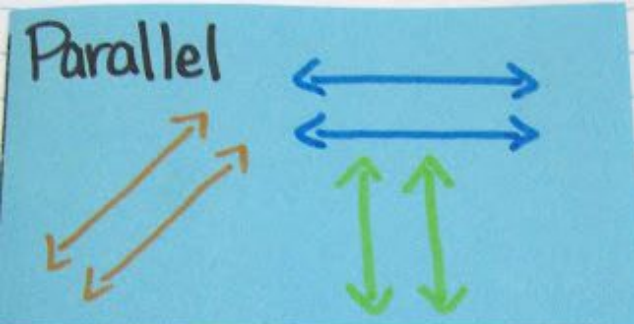
Perpendicular lines have opposite reciprocals for slope

Two numbers are opposite reciprocals if their product is -1 .

Ex: $y = \frac{1}{2}x + 3$ and $y = -2x + 3$



Notice $\frac{1}{2}(-2) = -1$

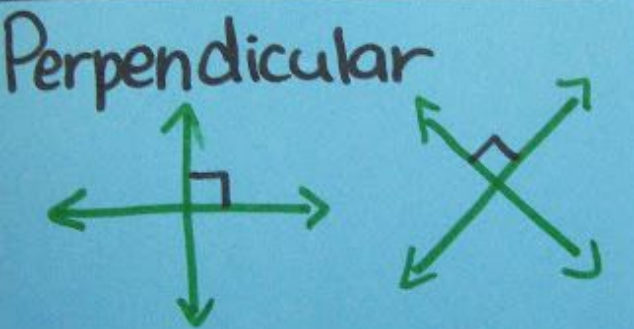


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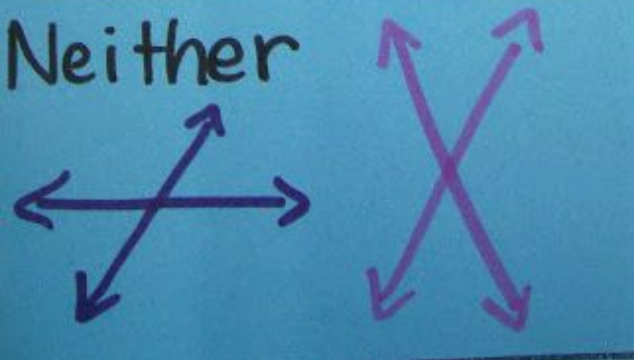


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The lines shown here do intersect, but not at a right angle.
They are neither parallel nor perpendicular.

Their slopes are not equal or opposite reciprocals

Classifying Lines

Are the graphs of $4y = -5x + 12$ and $y = \frac{4}{5}x + 8$ parallel, perpendicular, or neither?

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Step one: find the slopes!

Step two: compare the slopes!

You practice

a. $y = \frac{3}{4}x + 7$ and $4x - 3y = 9$

b. $6y = -x + 6$ and $y = -\frac{1}{6}x + 6$

Writing the equation of a parallel line

A line passes through $(12, 5)$ and is parallel to the graph of $y = \frac{2}{3}x - 1$.
What equation represents the line in slope-intercept form?

Writing the equation of a parallel line

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Writing the equation of a parallel line

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What equation represents the line in slope-intercept form?

Step one: Identify the slope!

Step two: Use point slope form to write the equation!

You practice

- A line passes through $(-3, -1)$ and is parallel to the graph of $y = 2x + 3$.
What equation represents the line in slope-intercept form?

Writing the equation of a perpendicular line

What is the equation of the line that passes through (2,4) and is perpendicular to the graph of $y = \frac{1}{3}x - 1$

Writing the equation of a perpendicular line

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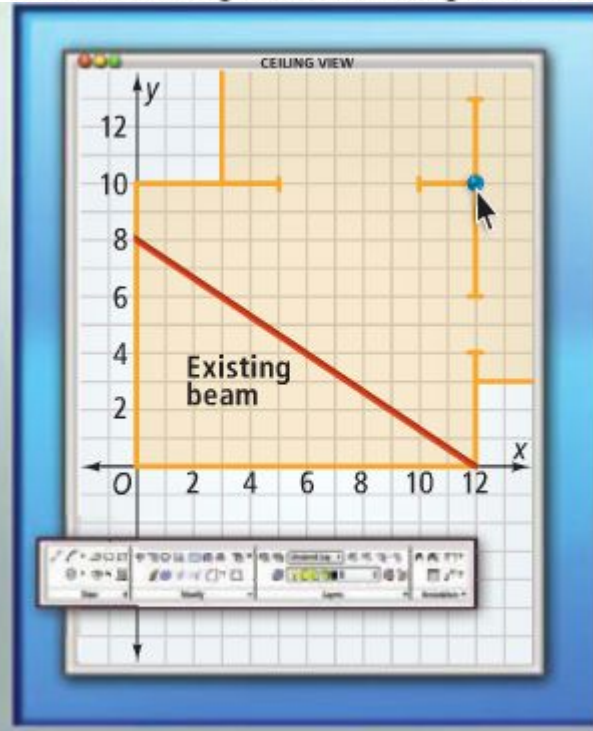
Step two: Find the opposite reciprocal of the slope

Step three: Use point slope form to write the equation

You practice

A line passes through $(1, 8)$ and is perpendicular to the graph of $y = 2x + 1$. What equation represents the line in slope-intercept form?

Architecture An architect uses software to design the ceiling of a room. The architect needs to enter an equation that represents a new beam. The new beam will be perpendicular to the existing beam, which is represented by the red line. The new beam will pass through the corner represented by the blue point. What is an equation that represents the new beam?



What equation could the architect enter to represent a second beam whose graph will pass through the corner at $(0, 10)$ and be parallel to the existing beam? Give your answer in slope-intercept form.

Homework

pg. 330 # 7, 9, 12, 13, 15, 17, 21, 23, 25, 26, 27, 32, 35