

Journal Entry:  
 -Write an absolute value function that has at least 2 transformations from the parent function. Describe the transformations, give the axis of symmetry and the vertex. Then graph the function.

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Section 2-8  
 Two-Variable Inequalities

Students will be able to  
 -graph 2-variable inequalities

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If you are given a gift card that has a value of \$50 and you want to spend as much of it as possible in one shopping trip. You want to stock up on your favorite snacks;

How can we show all possible combinations that you can buy?



\$5.25      \$3.00

$$5.25x + 3y \leq 50$$

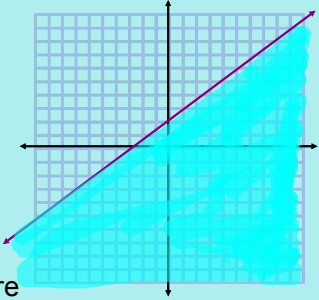
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'as much as possible' indicated that we needed to use an inequality.

linear inequality- an inequality in two variables whose graph is a region bounded by a line.

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Separated into 2 half-planes:  
 -solutions  
 -nonsolutions



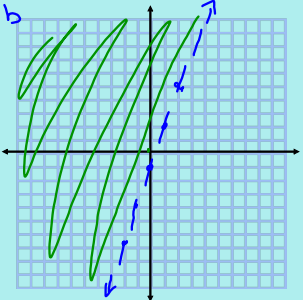
to determine where to shade, a test point is used (cannot be on the boundary line)

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Graph:  $y > mx + b$

$0 + 1 > 3(0)$   
 $y + 1 > 3x - 1$   
 $y > 3x - 1$

$3x - 2y \geq -5x + 6$   
 $-2y \geq -8x + 6$   
 $\frac{-2y}{-2} \geq \frac{-8x + 6}{-2}$   
 $y \leq 4x - 3$



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You can also use the inequality to show which side to shade (once into slope-intercept form)

$y >$  above the line

$y <$  below the line

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You put up a new shelf that is ~~4~~<sup>12</sup> ft wide to store some of your books and trophies. Each book takes up 1 inch and each trophy takes up 3 inches. What is a graph showing how many books and how many trophies will fit on the shelf?

$b + 3t \leq 12$

$b \leq 12 - 3t$

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Graph  $y \leq |x - 2| + 1$

$0 \leq 2 + 1$

$0 \leq 3$

Vertex (2, 1)  
opens up

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Graph:

$4 - y < |x + 3| - 4$

$y > -|x + 3| + 4$

Vertex (-3, 4)

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Hwk: pg 118 - 120  
#14 - 26 (every 4th)  
#28 - 46 evens

Quiz tomorrow over 2.5 - 2.8

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