

Smart Classrooms:

Teaching Math with Online Graphics Applets

Beverly Margolies

Applets on the Web

- Reputable Sites:
[Classzone](#), [NLVM](#), [Shodor](#), [AnalyzeMath](#),...
- Free, Easy Access
- Animated: Large, Colorful Display
- Java / Flash can run in any web browser
- Organized menu

<http://bootupnow.com/math>

Limitations

- JAVA / FLASH - must be tested prior – may not be enabled, plugin may be missing!
- Finding the best for your topic – same equation format
- Limited range of values

CLASSZONE

Animations (Flash)

Order of Ops

ch 1

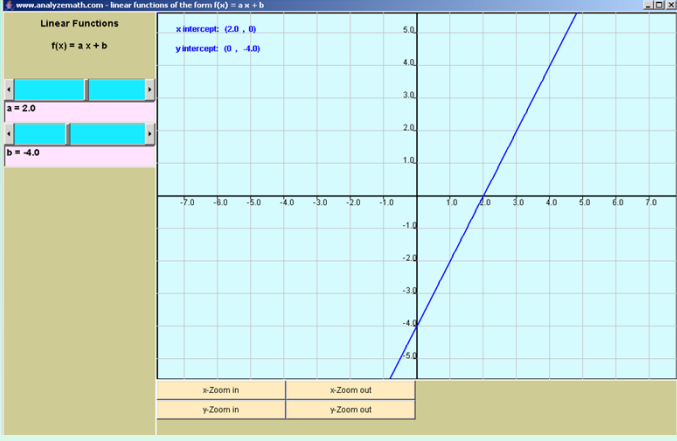
Evaluate the following expression.
Click on the blue parts of the expression to perform operations.

$$\frac{10 \div 2 + 7}{5 + 1 + 2}$$

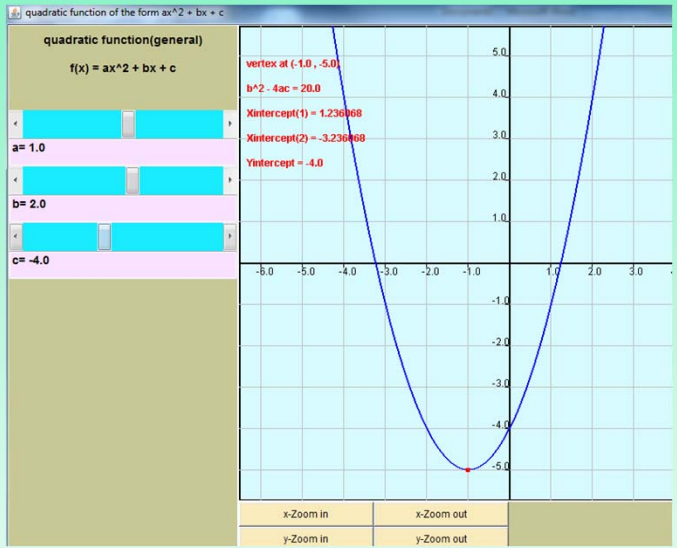
Undo

New

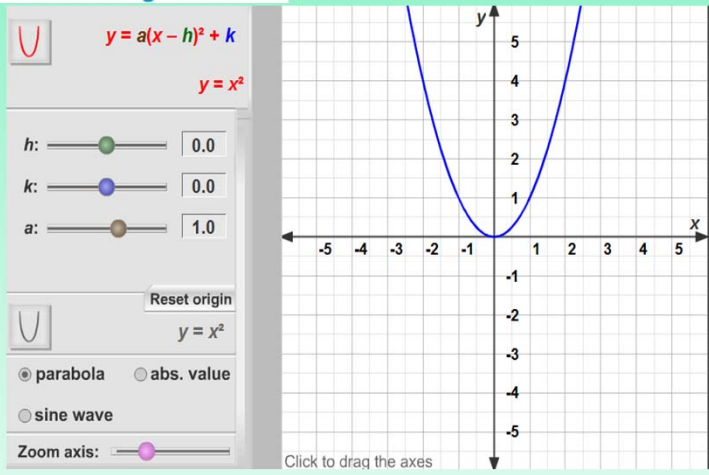
AnalyzeMath – linear & quadratic full screen



Java Applet menu #16f / 22b

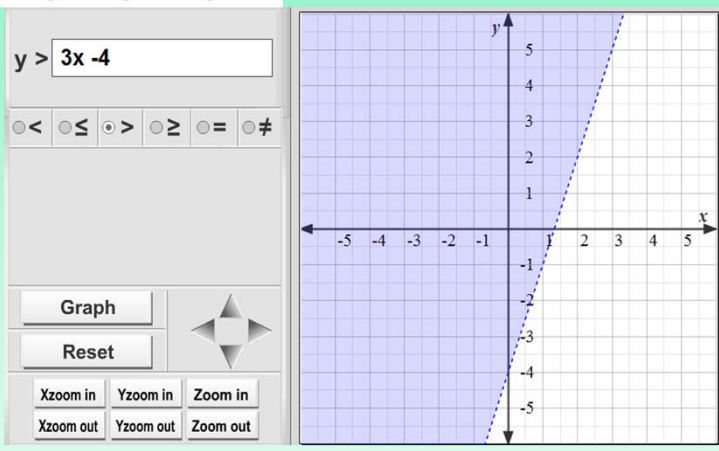


Hotmath.com Transforming Functions



22c

Hotmath.com Inequality Grapher



17c

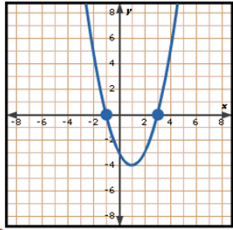
CLASSZONE

$y = (x - p)(x - q)$

$p = 3$
 $q = -1$

$y = (x - 3)(x + 1)$
 $y = x^2 + x - 3x - 3$
 $y = x^2 - 2x - 3$

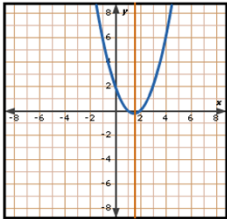
Verify intercepts as solutions



$y = ax^2 + bx + c$
 $y = x^2 - 3x + 2$

$a = 1$
 $b = -3$
 $c = 2$

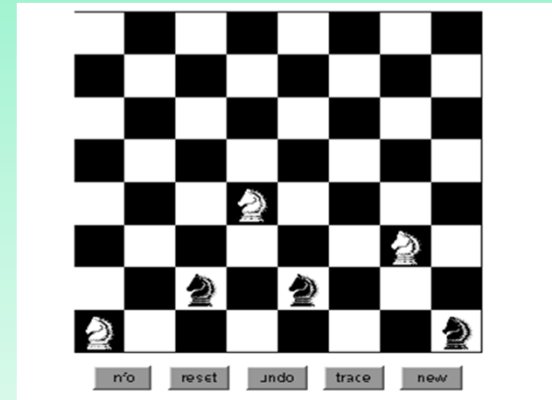
Show vertex calculation



Show axis of symmetry

Alg2 2011 Ch 4

EnchantedMind's Knight's Tour



MΔ Warehouse **Interactive Slope of a line**

The Slope

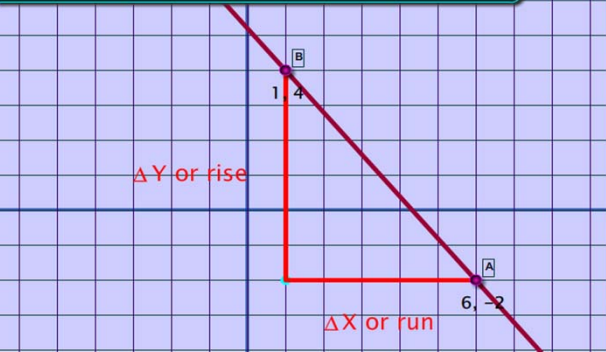
$\frac{\Delta Y}{\Delta X} = \frac{-2 - 4}{6 - 1} = \frac{-6}{5} = -1.2$

Table

(-10, 17.2)
(-9, 16)
(-8, 14.8)
(-7, 13.6)
(-6, 12.4)
(-5, 11.2)
(-4, 10)
(-3, 8.8)
(-2, 7.6)
(-1, 6.4)
(0, 5.2)
(1, 4)
(2, 2.8)
(3, 1.6)
(4, 0.4)
(5, -0.8)
(6, -2)
(7, -3.2)
(8, -4.4)

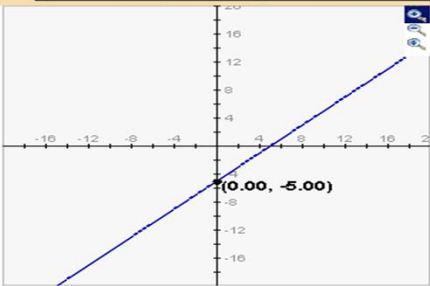
ΔY or rise

ΔX or run



<http://www.shodor.org/interactivate/activities/SlopeSlider/>
Slope Slider applet

Activity Help Instructor

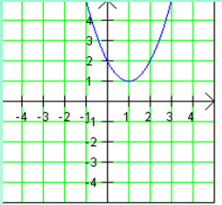


$y = 1.0x + -5.0$

Link Sliders
 Standard Notation

Slider Settings... Show Tabular Data

Joemath graphing applets



$y = a(x - h)^2 + k$
 $y = 1(x - 1)^2 + 1$

1 1 1
a h k

Store Clear

Status Ready...

Normal window Graph

Quadratics Part 1

$y = a(x - h)^2 + k$

Enter $a = 1, h = 0, k = 0$
gives $y = 1(x - 0)^2 + 0$ or $y = x^2$

Click Graph, then Click Store.
Use this graph to compare


1. Enter $a = 1, h = 0, k = -2$
Predict which way the graph will SHIFT?
 Up Left None
 Down Right

Now click Graph.

2. Enter $a = 1, h = 0, k = 2$
Predict which way the graph will SHIFT?
 Up Left None
 Down Right

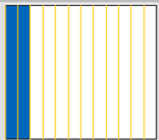
NLVM Applets basic skills

Find different names for the two fractions using the same denominator (the same denominator).



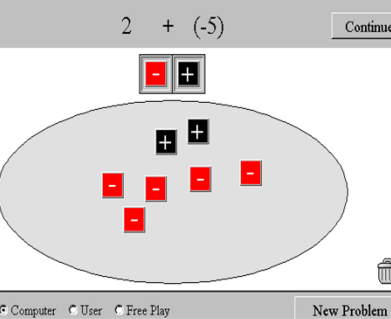
4

$\frac{2}{4} = \frac{\quad}{\quad}$



12

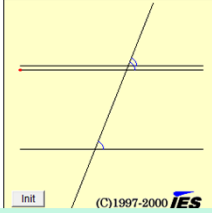
$\frac{1}{6} = \frac{\quad}{\quad}$



2 + (-5)

Computer User Free Play

Geometry - IES Java Applets



Complete the square for $x^2 + 6x$ using algebra tiles. Very good! You have completed the square, showing that: $x^2 + 6x + 9 = (x + 3)^2$

Width: $x + 3$

		X	1	1	1
X	x^2	X	X	X	
1	X	1	1	1	
1	X	1	1	1	
1	X	1	1	1	

Height: $x + 3$

McDougal Littell copy to clipboard audio off

The screenshot shows the CLASSZONE website interface for Algebra 2, 2011. At the top, there is a navigation bar with links for 'Sign In', 'My Account', 'Help/Information', 'eServices', 'Online Store', and 'Contact'. Below this, the page title 'Algebra 2, 2011' is displayed, along with a search bar and a 'chapter home...' dropdown menu. The main content area is organized into several sections: 'Help With the Math' featuring '@HomeTutor', 'PowerPoint Presentations', and 'Helpful Videos'; 'Practice, Practice, Practice' with a 'Worksheet' link; 'Games and Activities' including 'Puzzles and Games', 'Math Vocabulary', and 'Flipcards'; 'Animated Math' with 'Animations' and 'Interactive Math'; 'Quick Reference' containing 'Conversions', 'Formulas and Tables', 'Parents as Partners', 'Scientific Calculator', 'Electronic Function Library', and 'Keystrokes'; and 'Assessment' with 'Section Quizzes' and 'Chapter Tests'. At the bottom, there are links for 'Online Book', 'Teacher's Toolkit', and 'Common Core'.

The screenshot shows a TI-83 Plus calculator with the text 'RAM cleared' on its screen. The calculator is a Texas Instruments TI-83 Plus, and the screen displays the text 'TI-83 Plus 1.13' and 'RAM cleared'. The calculator has a standard keypad with various function keys and a numeric keypad. The background is a light green color.

vti83.exe