

Geometry and the TI-83+

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The following are some examples of strategies that may be used to prepare students for the Geometry End of Course Test. You may find some of these helpful in instruction and some more useful in review.

First we will cover some Algebra concepts which are used on the Geometry EOC.

To Solve Equations.

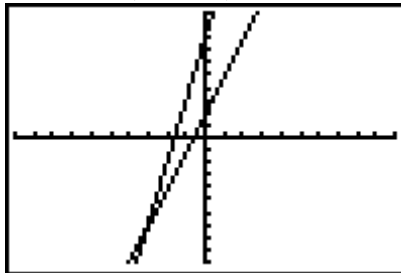
Ex. If angle A and angle B are equal and $m\angle A = 3x + 2$ and the $m\angle B = 5x + 8$, find the value of x .

1. Type $3x + 2$ into Y1 and type $5x + 8$ into Y2. Change window until you see the intersection and then use 2nd, trace, intersection.

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Plot1 Plot2 Plot3
Y1=3X+2
Y2=5X+8
Y3=
Y4=
Y5=
Y6=
Y7=

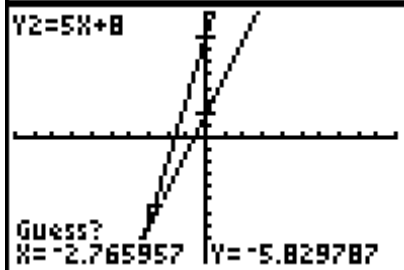
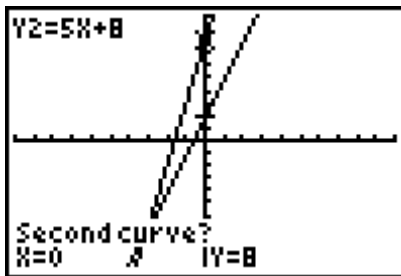
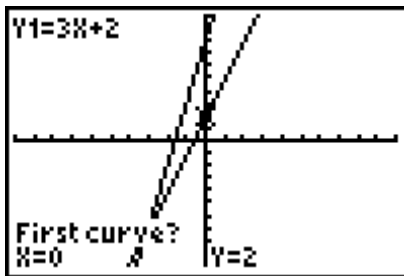
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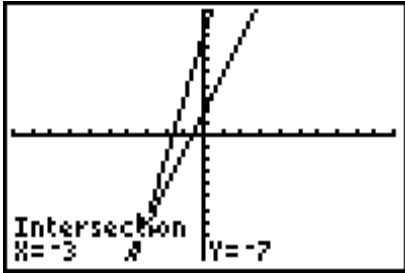


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MODE
1:value
2:zero
3:minimum
4:maximum
5:intersect
6:dy/dx
7:∫f(x)dx

```



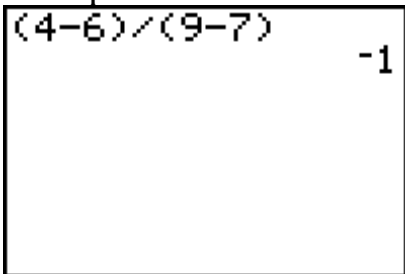


2. This can also be done by moving all terms of the equation to one side and then typing equation into Y1 and 0 into Y2. Sometimes this method helps if students are struggling with the window.

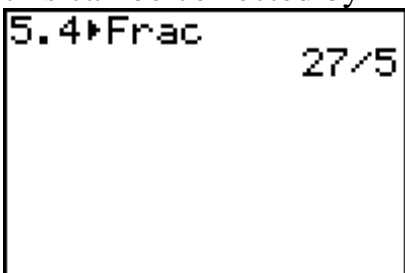
To find slope:

Ex. Find the slope of the line from (7,6) to (9,4).

1. This can be done by formula $\frac{y_2 - y_1}{x_2 - x_1}$. On the Ti 83 the student can type in the entire expression and have fewer sign errors. The trick is to emphasize that the top of the fraction must be grouped and so must the bottom.



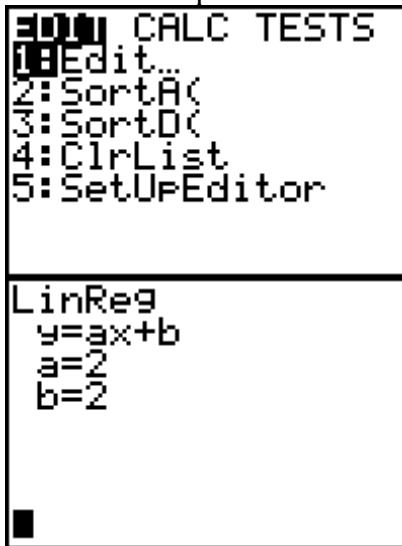
If the answer is a decimal and needs to be a fraction this can be corrected by "frac"ing it. The frac option is under Math.



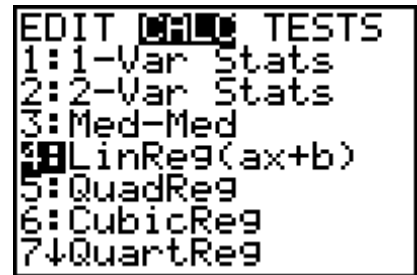
2. Slope can also be gotten through Regression. This is useful because it will also help with those "get the equation of the line" problems.

To find the equation of a line through two points, do regression with the two points. Begin by selecting Stat.

Ex. Find the equation of the line through (2,6) and (1,4).



L1	L2	L3	2
2	6	0	
1	4	0	
-----		0	
		0	
		0	
		0	
		0	
		0	
L2(3) =			



And so the slope is 2.

Equation of line continued

To find the equation of a line given slope and a point, use slope to get another point and go back to previous strategy.

Ex. Find the equation of a line with slope $2/3$ and through $(-3,1)$.

Use the points $(-3,1)$ and $(-3+3,1+2)$

APPS

The App option on the TI83+ gives the instructor access to many teaching tools which will make Math concepts more easily understood and at the same time will hold the attention of today's students. We will next examine some of the Apps available.

Areaform

This application helps students examine area. First go to apps and select AreaForm.



Enter until you get the following screen.

SELECT A MODE
 1: DEFINITIONS & FORMULAS
 2: AREA QUIZ
 3: QUIT

(INFO)

As I go through the app feel free to make notes on your handout.


SELECT A SHAPE
 1: RECTANGLE
 2: SQUARE
 3: PARALLELOGRAM
 4: TRIANGLE
 5: TRAPEZOID
 6: CIRCLE

(MENU)

AREA: RECTANGLE

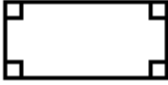
L = LENGTH
 H = WIDTH

AREA = $L * H$ sq units



(MENU) (DEF) (EXAMPLE)

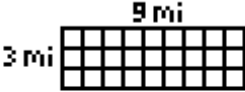
DEFINITION: RECTANGLE



A **RECTANGLE** IS
 A QUADRILATERAL WITH
 4 RIGHT ANGLES.

(MENU) (AREA) (EXAMPLE)

EXAMPLE: RECTANGLE

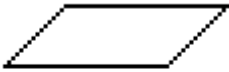


9 mi
 3 mi

AREA = $9 \text{ mi} * 3 \text{ mi}$
 = 27 sq mi

(MENU) (DEF) (AREA) (EXAMPLE)

DEFINITION: PARALLELOGRAM



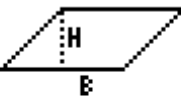
A **PARALLELOGRAM** IS
 A QUADRILATERAL WITH
 OPPOSITE SIDES PARALLEL.

(MENU) (AREA) (EXAMPLE)

SELECT A SHAPE
 1: RECTANGLE
 2: SQUARE
 3: PARALLELOGRAM
 4: TRIANGLE
 5: TRAPEZOID
 6: CIRCLE

(MENU)

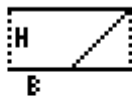
AREA: PARALLELOGRAM
 H = HEIGHT
 B = BASE



AREA = $H * B$ sq units

(MENU) (DEF) (EXAMPLE) (WHY?)

AREA: PARALLELOGRAM
 H = HEIGHT
 B = BASE



AREA = $H * B$ sq units

SAME AREA AS A RECTANGLE

(MENU) (DEF) (EXAMPLE) (WHY?)

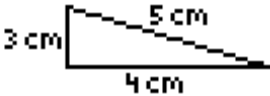
SELECT A MODE
 1: DEFINITIONS & FORMULAS
 2: AREA QUIZ
 3: QUIT

(INFO)

SELECT A LEVEL
 LEVEL 1
 LEVEL 2

SELECT & PRESS (ENTER)

(MENU) HIGH SCORE: 36



A: 7 sq cm C: 6 sq cm
 B: 12 sq cm D: 13 sq cm

(MENU) (A) (B) (C) (D)

Next we will look at the SMILEMth Application

APPLICATIONS
 4: Conics
 5: CtlgHelp
 6: Organize
 7: Periodic
 8: Prob Sim
 9: PuzzPack
 10: SMILEMth

Enter until you see the next screen

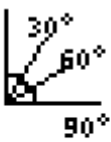
SELECT A GAME
 1: MINIMAX
 2: BOX
 3: MATCHING FRACTIONS
 4: ANGLE (90° & 360°)
 5: RHINO

(QUIT) (INFO)

Select angle. The object of this application is to guess the size of angles. It is a good activity to be done whole class.

SELECT A MODE
ANGLE 90°
 1: INTRODUCTION
 2: ESTIMATION
 3: CHALLENGE

(QUIT) (HELP)



HERE IS AN ANGLE OF 90°.
 PRESS GO TO START.

(QUIT|MODE) (GO)

INPUT AN ANGLE FROM 5° TO 90°
 °
 & PRESS DRAW

(QUIT|MODE|DRAW) (HELP)



ANGLE DRAWN IS
 °
 PRESS GO

(GO) (HELP)

Going back to mode, try estimation.


SELECT A MODE
ANGLE 90°
 1: INTRODUCTION
 2: ESTIMATION
 3: CHALLENGE

(QUIT) (HELP)

FIVE ANGLES WILL BE DRAWN.
 ESTIMATE THE SIZE OF EACH ANGLE.

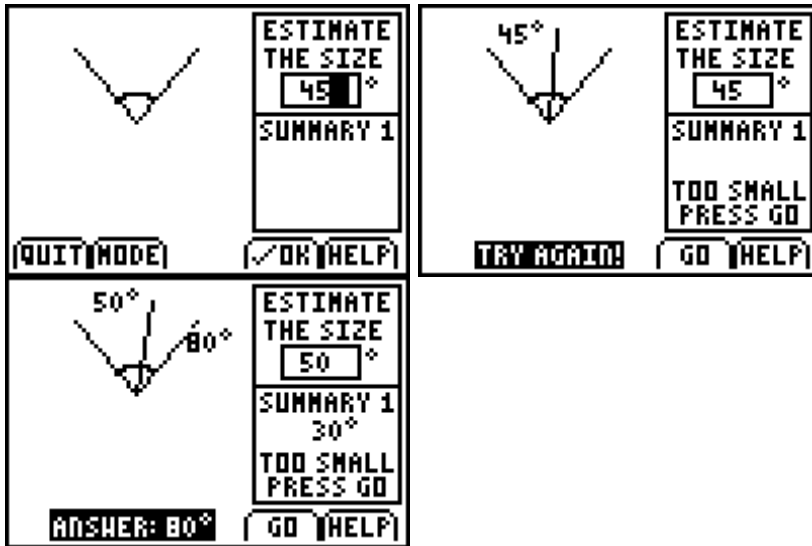
PRESS GO TO SEE AN ANGLE!

(QUIT|MODE) (GO) (HELP)

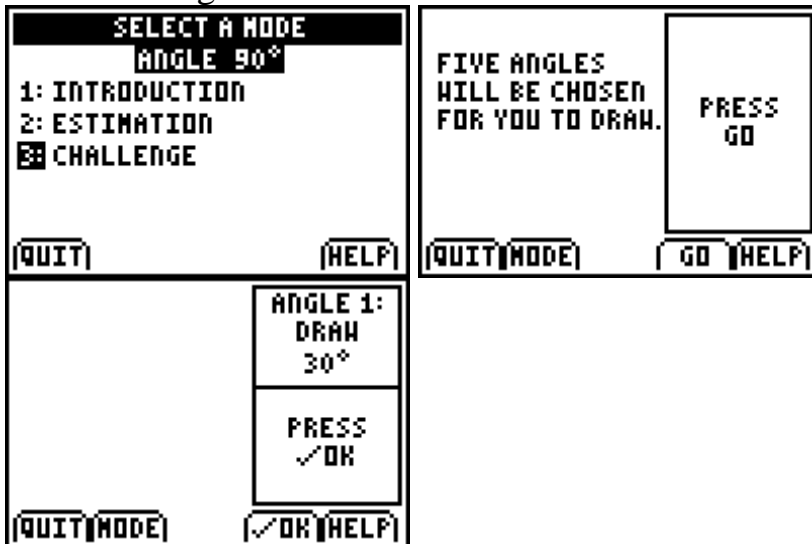


ESTIMATE THE SIZE
 °
 SUMMARY 1

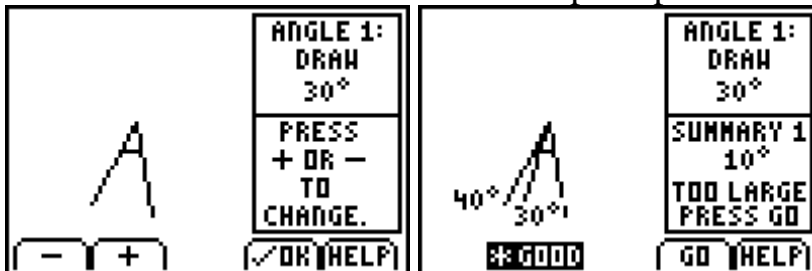
(QUIT|MODE) (✓) (OK) (HELP)



Now challenge



The trick here is for the student to stop the picture at the right size of angle.



Under SMILEMth there is also a game called Rhino in which students do a guess and check of coordinates.

The final Application we will look at is WhatAngl. This app lets students guess sizes of angles but also shows how angles are everywhere. The following is a sample.

APPLICATIONS
7: Periodic
8: Prob Sim
9: PuzzPack
0: SMILEmth
: Start-up
: StudyCrd
■ WhatAngl

What Is My Angle?
SELECT AN ANGLE TYPE:
1: ACUTE
2: OBTUSE
3: REFLEX
4: ANY ANGLE
(HELP) (INFO) (EXIT)

