# Using KeyMath with Algebra and Pre-Algebra

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Overview: This lesson will focus on the KeyMath application of the Monarch.

Age Range: Intermediate to advanced braillist; students in Algebra or pre-algebra courses

## Activity A

In this activity, the student will become familiar with the KeyMath application on the Monarch:

1. Choose your preferred math code using the options menu. (space +O)
	1. Press "enter on configure language profiles"
	2. Navigate to the "preferred type for math"
	3. If your desired math code is announced, press the home button.
	4. To switch the code: press enter
		1. Navigate to your preferred math code
		2. Press enter
		3. Press the home button to return to the main menu
2. Practice the following shortcuts:
	1. Graph viewer: enter with g
	2. Graph settings: space with dots 3-5
	3. New expression: space with N
	4. Insert symbols: backspace with dots 3-5
	5. Delete expression: backspace with dots 2-3-5-6
	6. Delete all expressions: backspace with dots 3-5-6
3. Configure settings:
	1. To adjust settings for graphs, press space with dots 3-5 anywhere in KeyMath.
	2. Check the boxes for the following:
		1. Show grid on graph
		2. Show grid on tactile preview
		3. Show axis on tactile preview
4. Access symbol look-up:
	1. Using the expression $x^{2}-4$
	2. Within the expression, press backspace with dots 3-5
	3. Navigate through categories and press enter on your choice
	4. Navigate again, press enter on the symbol you want, and it will be inserted.

##  Activity B

1. In this activity, the student with use KeyMath to graph a few equations: $Y=2X+4$
2. Students will follow the following commands within KeyMath:
	1. Press space with N
	2. Type the first equation.
	3. Press Enter
	4. Press Enter with G
3. Repeat for the next equation: $y = -2x + 12 $\*Both equations should be graphed.\*
4. Students should be encouraged to graph (2) additional equations to add to the graph
5. Student should save the assignment and be prepared to add to flash drive to share with teacher.

## Activity C

In this activity, the student will practice graphing circles.

1. Students will follow the following commands within KeyMath:
	1. Press space with N
	2. Type the first equation.
	3. Press Enter
	4. Press Enter with G
2. Graph the circle: $\left(x-2\right)^{2}+\left(y+3\right)^{2}=25$
3. Students should be encouraged to create a new circle using the previous pattern.
4. Student should save activity C to a flash drive and be prepared to share with their teacher.

## Activity D

In this activity, the student will practice graphing expressions using square roots.

1. Students will follow the following commands within KeyMath:
	1. Press space with N
	2. Type the first equation.
	3. Press Enter
	4. Press Enter with G
2. Find the roots of $x^{2}=16$
3. Find the roots of $x^{2}=49$
4. Find the roots of $x^{2}=81$
5. Student should create a new expression using square roots.
6. Student should save activity D to a flash drive and be prepared to share with their teacher.

## Conclusion:

These activities should provide the student with a firm understanding of the KeyMath application on the Monarch. By using the Monarch for graphing equations, the student has instant access to the graph that their sighted peers receive through applications such as the Desmos graphing calculator. Equitable access to educational materials for students with visual impairments provides a level playing field and inclusion for all!