Name _____

Class _____

Problem 1 – Square Roots

Solve the equations below by graphing them on the calculator and finding the intersection with the *x*-axis (if there is one). To find the intersection, follow the steps below.

Note: Each equation has been set equal to zero. If an equation was not equal to zero, the correct algebraic steps would be used to do so.

1. $\sqrt{x}-3=0$ Solution: _____

2. $2\sqrt{x+2}-4=0$ Solution: _____

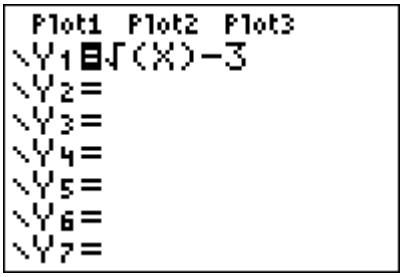
3. $-\sqrt{x-2}+5=0$ Solution: _____

4. $-3\sqrt{x-4}=0$ Solution: _____

5. $\sqrt{x}+1=0$ Solution: _____

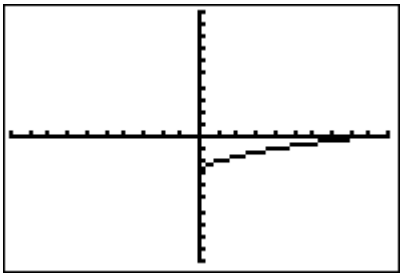
6. $\sqrt{x-2}+3=0$ Solution: _____

Press [Y=] and enter the desired equation.

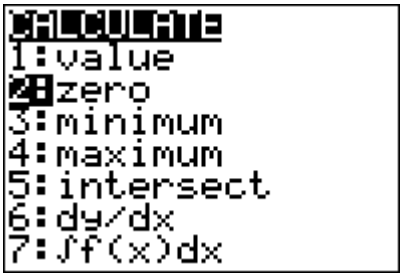


Press [ZOOM] and select **ZStandard** to display the graph of the equation.

If a larger viewing window is needed, press [WINDOW] and enter the desired values.

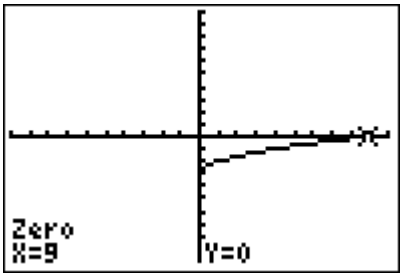


To find the location(s) of the zeros (the solution to the equation,) press [2nd] [CALC] and select **2:zero**.



Now, use the arrow keys to move the cursor to:

- the left of the zero and press [ENTER].
- the right of the zero and press [ENTER].
- the guess of the zero's location and press [ENTER].



Problem 2 – Cubic Roots

Solve the equations below by graphing them and finding the intersection with the *x*-axis (if there is one).

7. $\sqrt[3]{x} - 2 = 0$ Solution: _____

8. $3\sqrt[3]{x+3} = 0$ Solution: _____

9. $\sqrt[3]{x+1} - 4 = 0$ Solution: _____

10. $-2\sqrt[3]{x} + 6 = 0$ Solution: _____

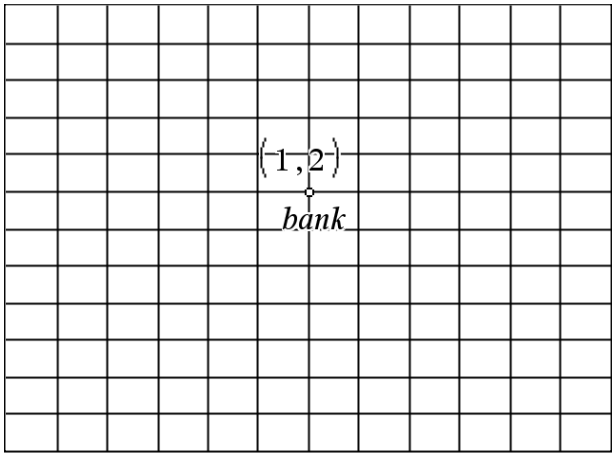
11. $\sqrt[3]{x} + 2 = 0$ Solution: _____

12. $2\sqrt[3]{x-4} + 3 = 0$ Solution: _____

Extension

John wants to place new ATMs exactly 5 miles (in a straight line) from the bank and at the intersection of two streets. In his city, each block is 1 mile long and his bank is located 1 block east and 2 blocks north of the city center.

Use the picture to the right and the distance formula to help you answer the questions below.



13. If he installs a machine 3 blocks north, how far east/west should the ATM be?

14. If he installs a machine 3 blocks south, how far east/west should the ATM be?

15. If he installs a machine 4 blocks east, how far north/south should the ATM be?

16. If he installs a machine 4 blocks west, how far north/south should the ATM be?