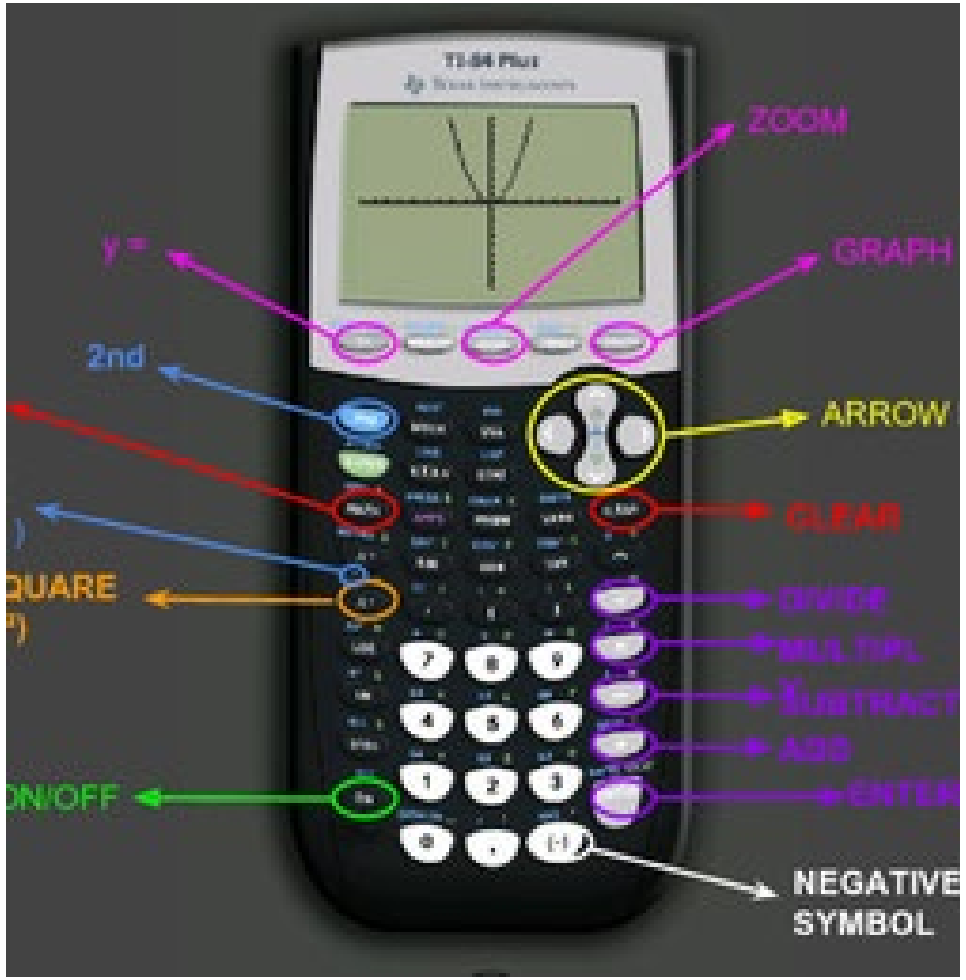
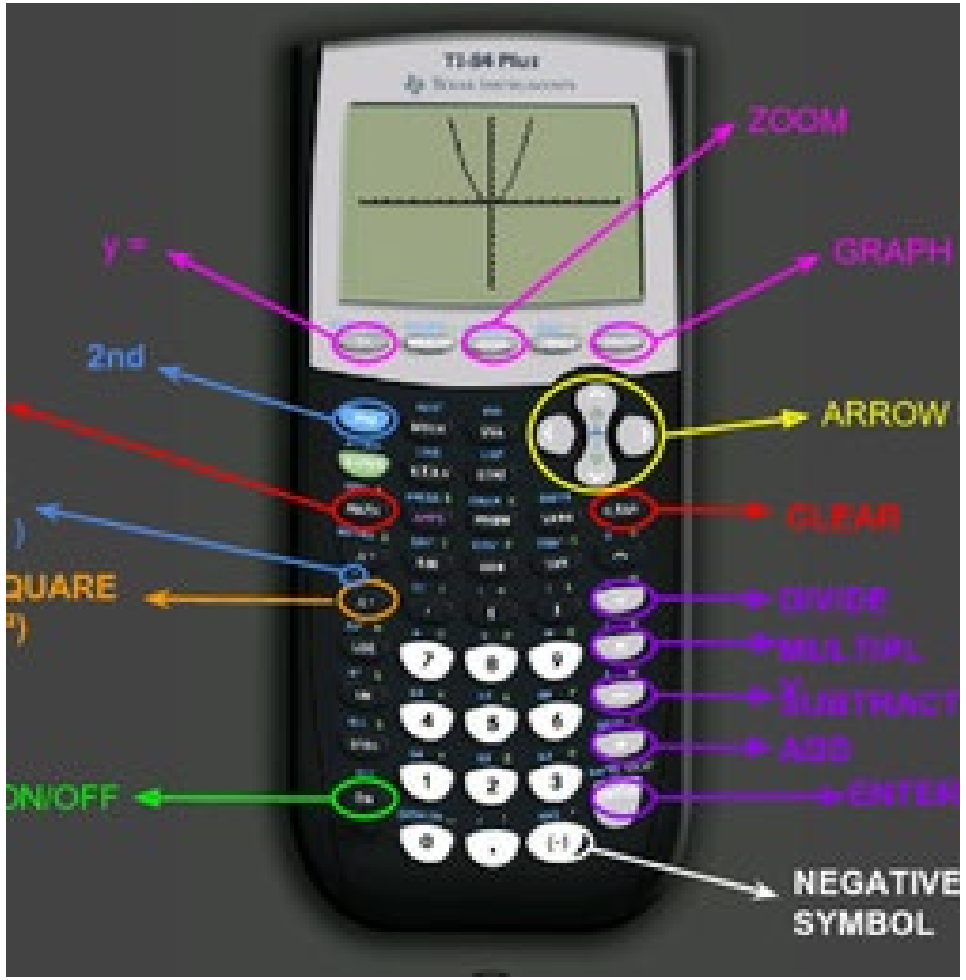
Agenda



- Introductions
- Intro to Basic Graphing Calc Keys
- Hands on Practice
- Application with Algebra Regent Exam Prior Questions
- Advanced Graphing Calc, Closing

Part 1 Agenda



1) On/Off

2) Squaring and Square Root

3) Fractions and Decimals

4) Graphing a Line & Absolute Value

5) Evaluate Functions

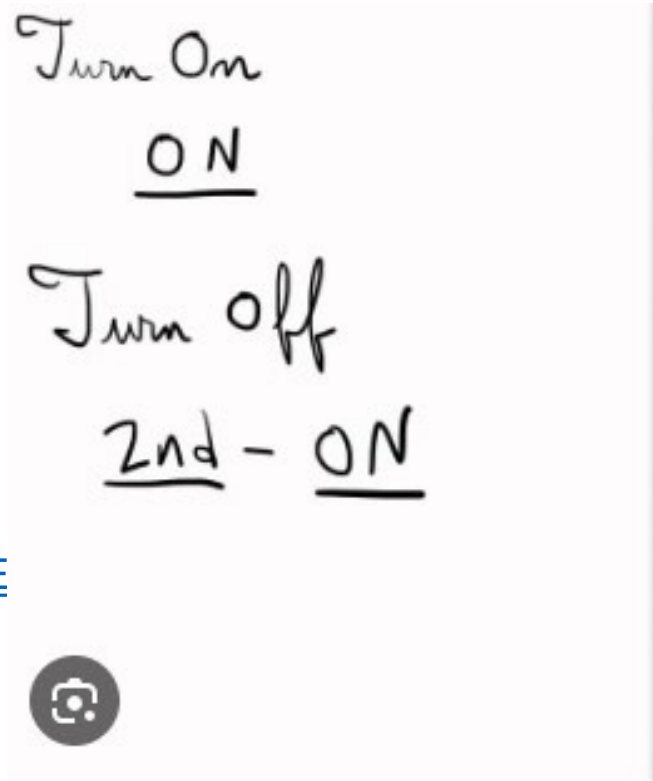
1) To turn On and Off

- On Button (lower left)
- Off Button (top left)

2nd - On

- Video Link:

https://www.youtube.com/watch?v=Yy31WqU6PoE



2) X squared x^2

Type #, then x squared

Example to try!

$60^2 =$ _____ $15^2 =$ _____ $20^2 =$ _____

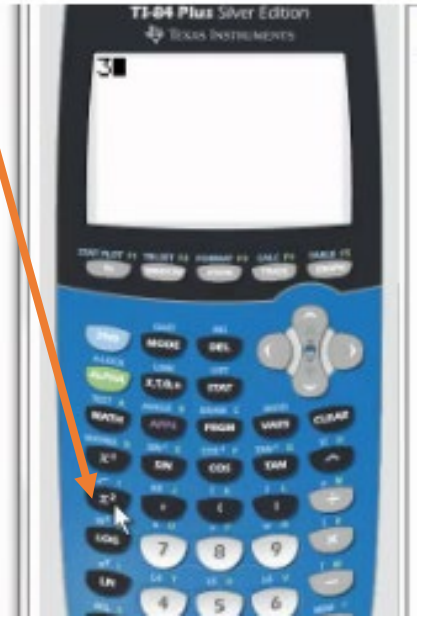
$60^2 =$ 3600 $15^2 =$ 225 $20^2 =$ 400

Value x^2 enter

K 2nd power is ommonly referred to as "squared"

3^2 is "3 squared"

8^2 is "8 squared"



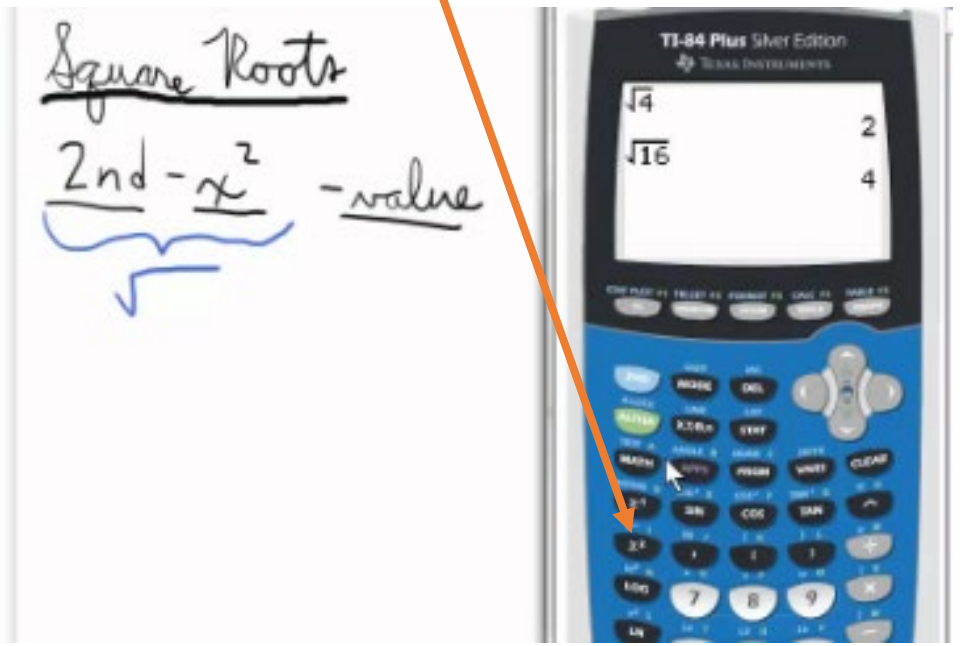
- Video https://www.youtube.com/watch?v=KsxONwOI4oU

2) Square Root

Type 2^{nd} x squared then #

Find the square root.	
$\sqrt{121}$ =	$\sqrt{16}$ =
$\sqrt{81}$ =	$\sqrt{1}$ =
$\sqrt{4}$ =	$\sqrt{49}$ =

x^2



- Video https://www.youtube.com/watch?v=KsxONwOI4oU

3) All About Fractions!

TO MAKE A FRACTION:

1) Press alpha (Green Key)

Note: Grey box will show

2) Press y= (upper left)

3) Press Enter

TO ADD/SUB/MULT/DIV:

- Type in Numerator and then use the grey arrows on the right to get to the denominator to put the number in
- When done press the right arrow to get out of the denominator

To CHANGE A DEC TO A FRACTION:

- Math (Left side), 1 Fraction, Enter

VIDEO LINK:

- https://www.youtube.com/watch?v=ADtEEQkYnhI

Example to try!

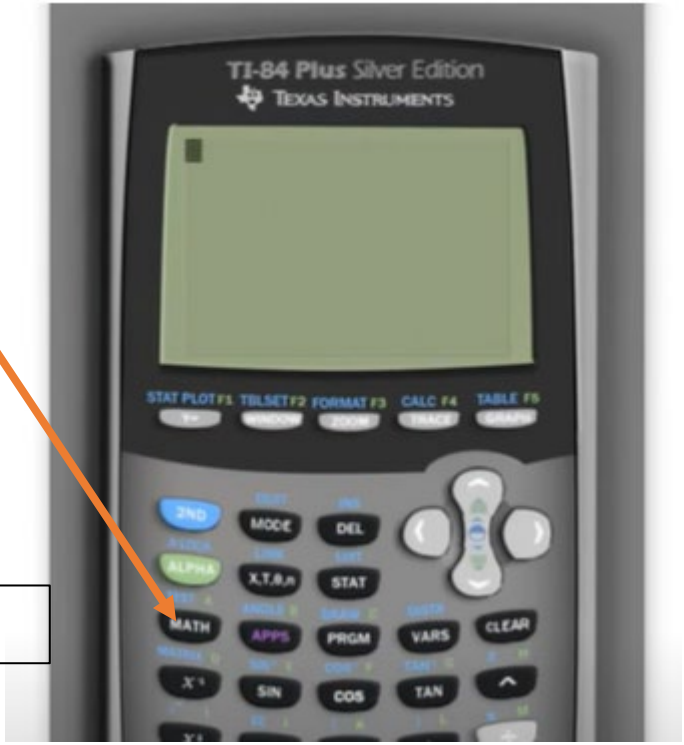
$$\frac{2}{5} + \frac{2}{5} = \frac{4}{5} \qquad \frac{3}{5} + \frac{2}{5} = \frac{5}{5}$$

$$\frac{1}{4} + \frac{1}{4} = \frac{2}{4} \qquad \frac{1}{3} + \frac{1}{3} = \frac{2}{3}$$

$$\frac{4}{7} + \frac{2}{7} = \frac{6}{7} \qquad \frac{2}{4} + \frac{3}{4} = \frac{5}{4}$$

Math Fraction Enter!

3) All About Decimals!



To change a Decimal to a Fraction:

- Math (Left side), Fraction, Enter

Examples to try!

1. 0.83 = _____

2. 0.4 = _____

3. 0.24 = _____

4. 0.96 = _____

VIDEO LINK:

https://www.youtube.com/watch?v=SlzDP5fslUM

Regents Ready!!!
Aug Regents Question 25

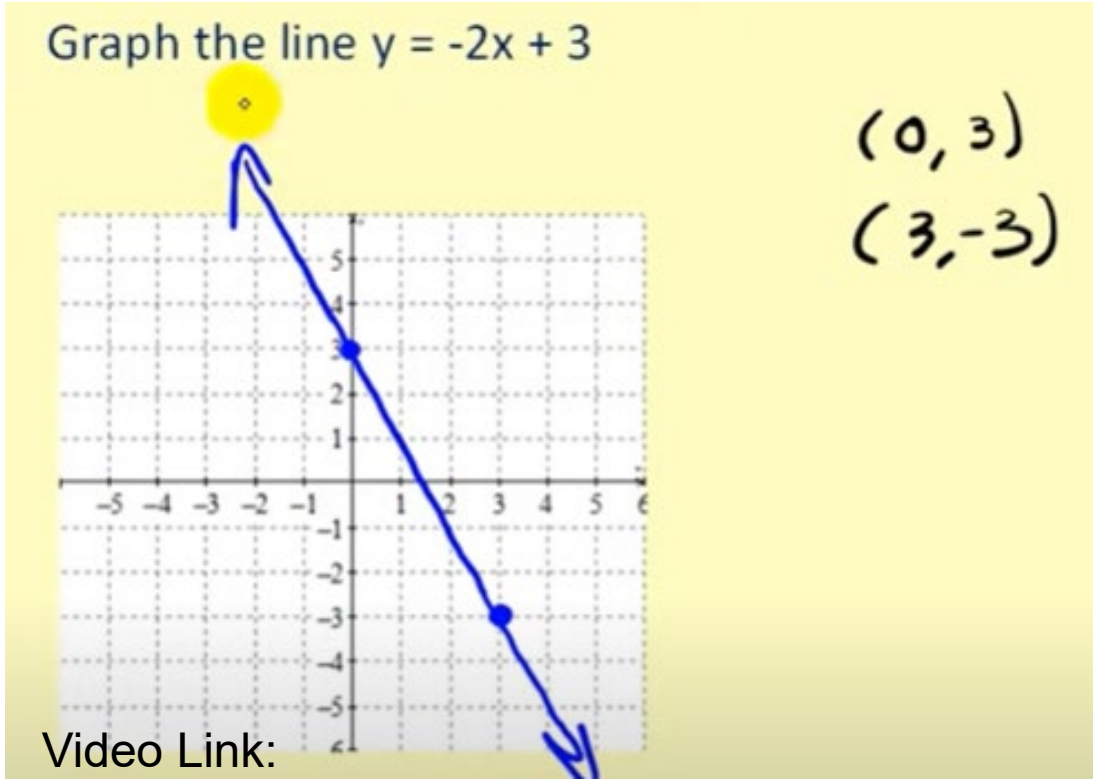
25 Classify the expression $\frac{2}{\sqrt{144}} + \frac{\sqrt{169}}{3}$ as rational or irrational. Explain your reasoning.

Regents Ready!!!
Aug Regents Simplify Radical

The expression $\frac{6\sqrt{20}}{3\sqrt{5}}$ is equivalent to

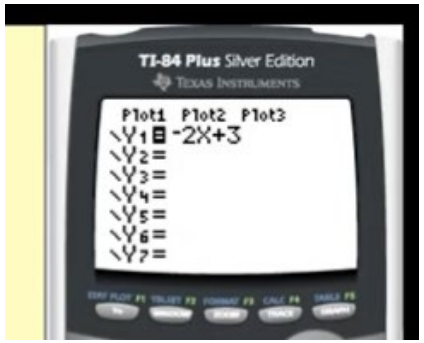
1) $3\sqrt{15}$
2) $2\sqrt{15}$
3) 8
4) 4

4) Graph a Line



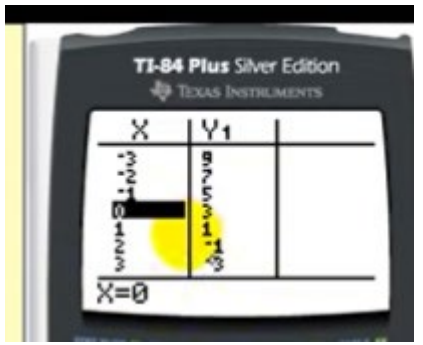
Video Link:
https://www.youtube.com/watch?v=_zFbA1yti6E

1. **Solve for y=**



2. **Go to y= and type in calculator**

3. **Hit 2nd Graph; Make a Table and plot the points on graph**



4. **Hit "Graph" to graph the line**

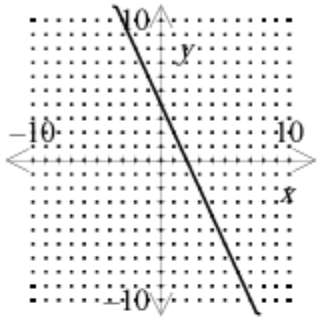
Regents Practice

- **Steps:**

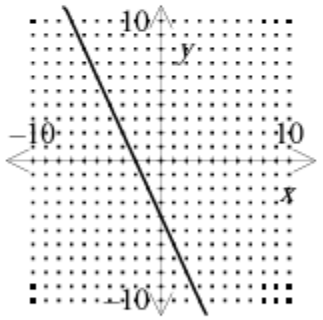
1) **Type into y =**
2) **2nd Graph for Table or Graph to match**

1. $y = -2x - 4$

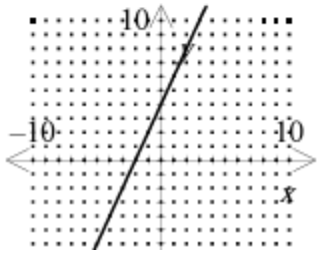
[A]



[B]

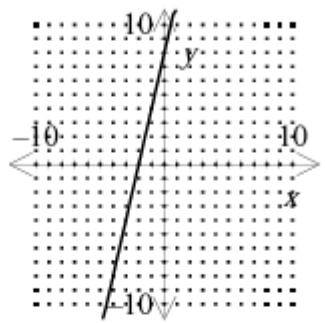


[C]

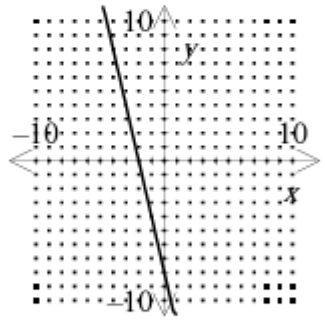


2. $y = 4x + 8$

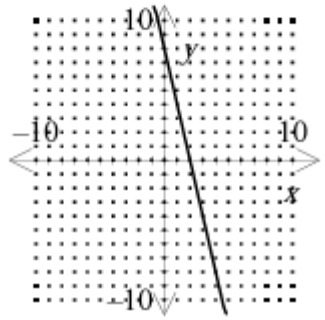
[A]



[B]



[C]



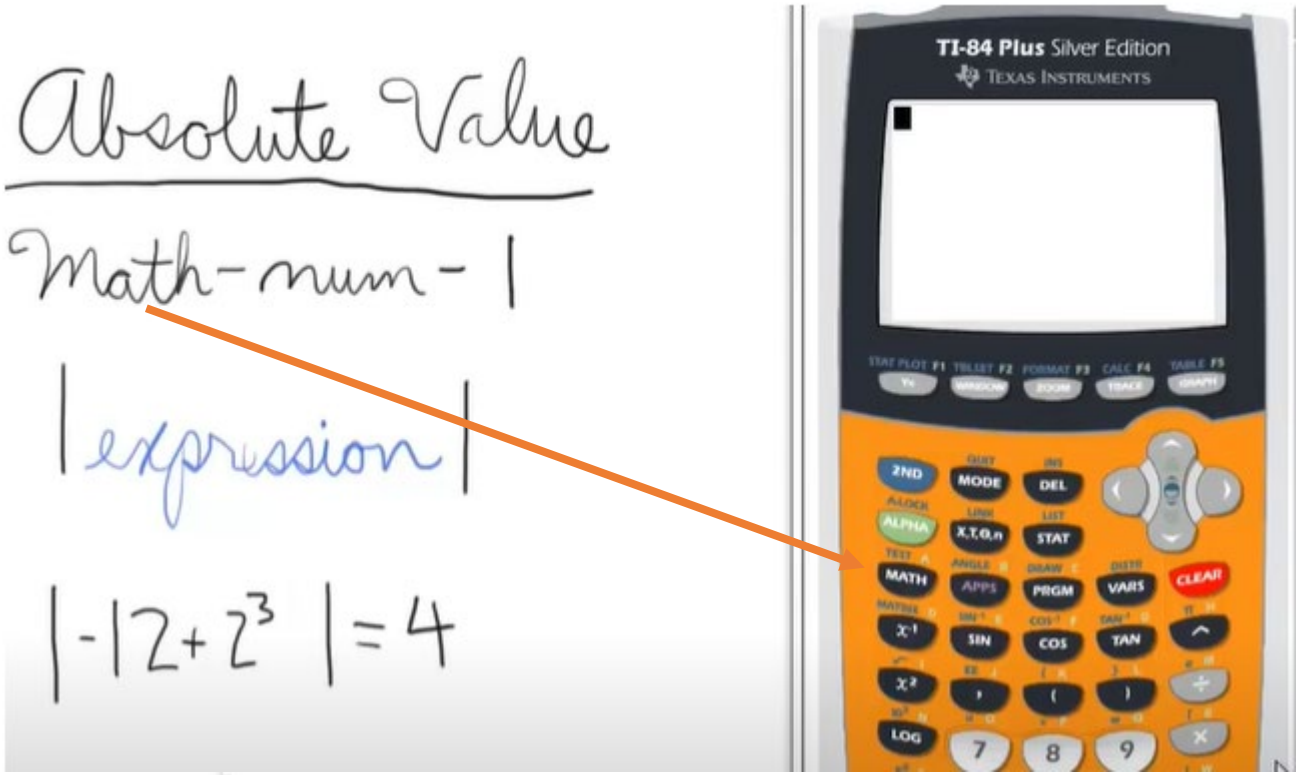
4) All About Absolute Value!

TO MAKE ABSOLUTE VALUE BARS

Math, Number, 1, Enter

Example to try!

1. $|10| =$ _____
2. $|-325| =$ _____
3. $-|25| =$ _____
4. $|-45| =$ _____
5. $|125| =$ _____



Video Link:
https://www.youtube.com/watch?v=aELvIFNYI8E

4) Graph Absolute Value

$$\text{Graph } y = |x - 1| + 2$$

1. Go to y= and type in calculator

3. Hit 2nd Graph; Make a Table and plot the points on graph Need 7 points to make the "V"

4. Hit "Graph" to graph the line

Video Link:
https://www.youtube.com/watch?v=36bMd2ddjFM

Regents Practice

26 Graph the function $f(x) = \left|\frac{1}{2}x + 3\right|$ over the interval $-8 \le x \le 0$.

1. **Go to y= and type in calculator**

3. **Hit 2nd Graph; Make a Table and plot the points on graph Need 7 points to make the "V"**

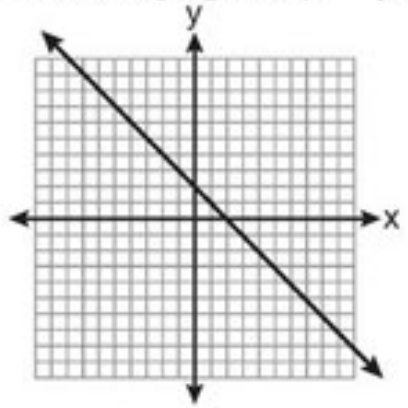
4. **Hit "Graph" to graph the line**

Video Link:
https://www.youtube.com/watch?v=Id4UD98yHio

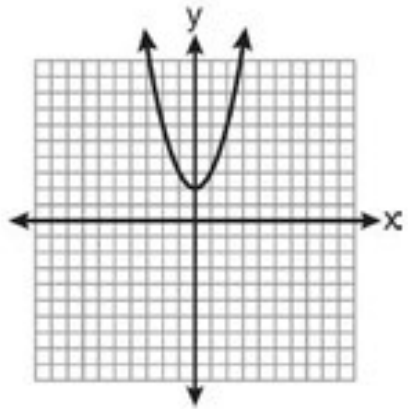
Regents Ready!!!
Graphing Abs Value

2 Which is the graph of $y = |x| + 2$?

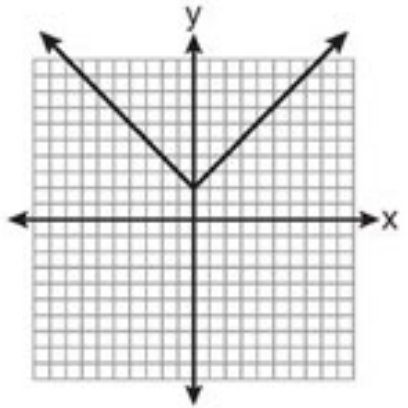
1)



2)



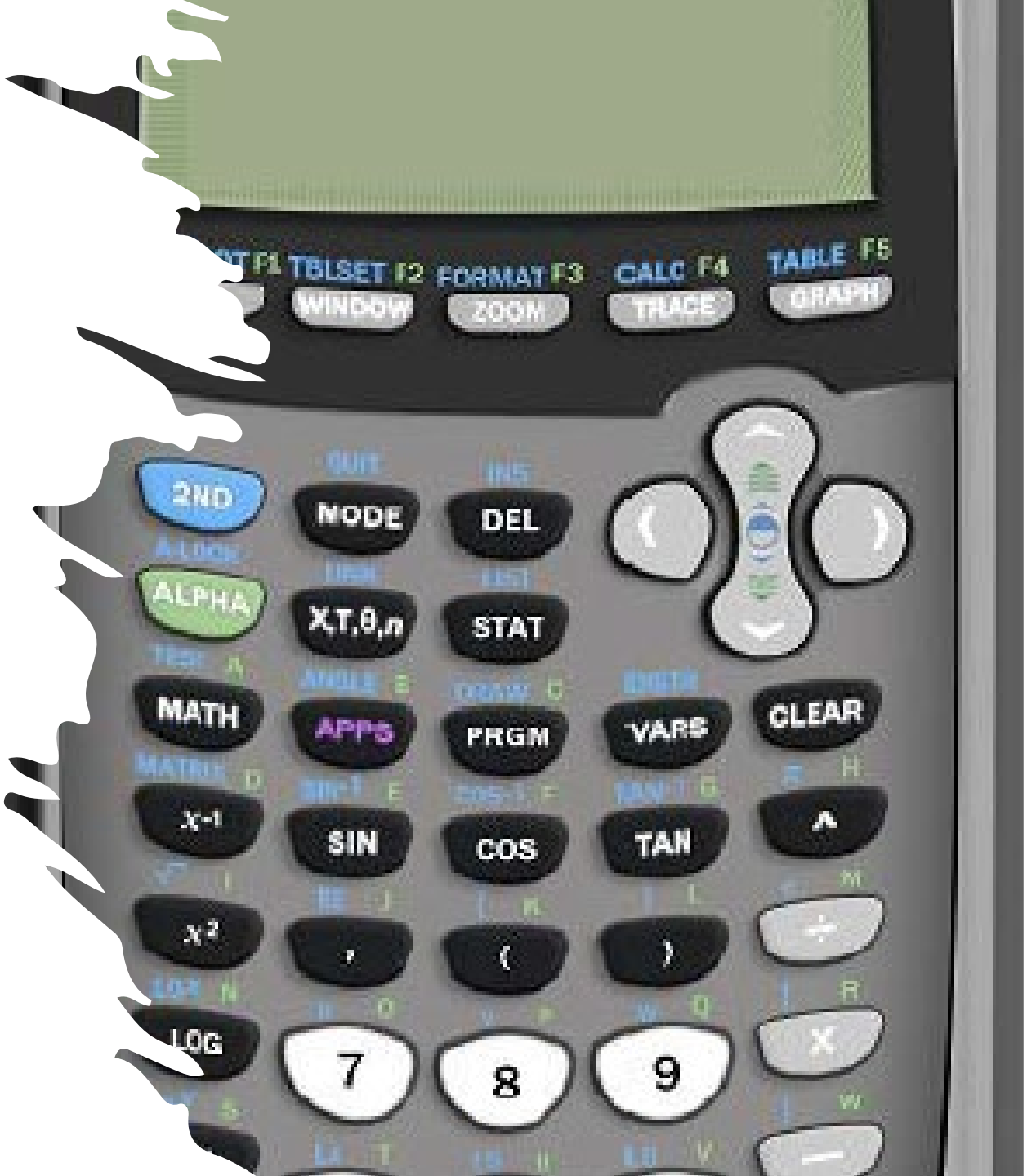
3)



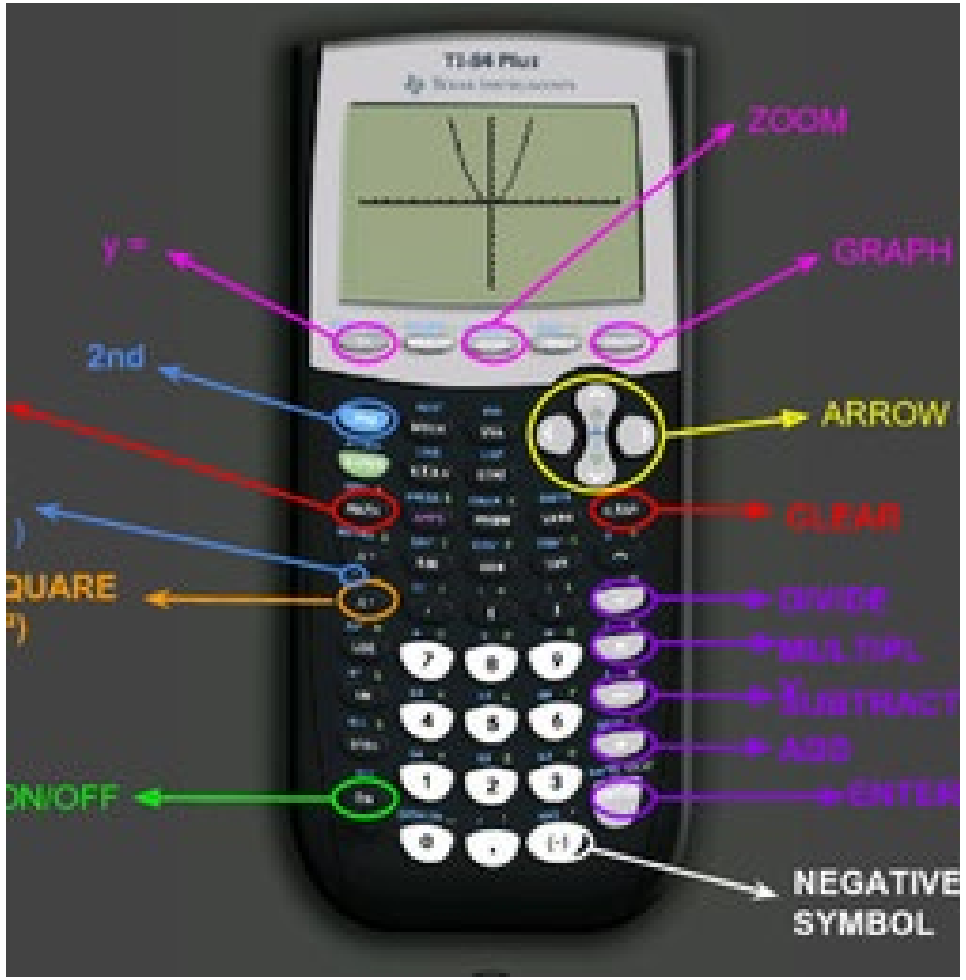
Graphing Calculator 101

- Android APP: wabbitemu
- Iphone APP: Calculate84
- Dec 2023

Part 2 Advanced



Part 2 Agenda



6) Evaluate Functions

7) Graphing a Parabola and Zeros

8) Equation of a Line

9) Exponential Equations

10) Box Plots

6) Evaluating Functions!

Type into y = and use 2nd graph to look at the table, find value at x =

Example: f(x) = 3x - 2 if x = -2

f(x) = 3x - 2

f(-2) = 3(-2) - 2

f(-2) = -6-2

f(-2) = -8

what if x = 7 ?

The "old" way	*The "new" way using function notation*
What is y = 2x at x =5	f(x) = 2x f (5) = ?

In both cases, substitute '5' for 'x' and calculate

Solution

y = 2(5)
= 10

Solution

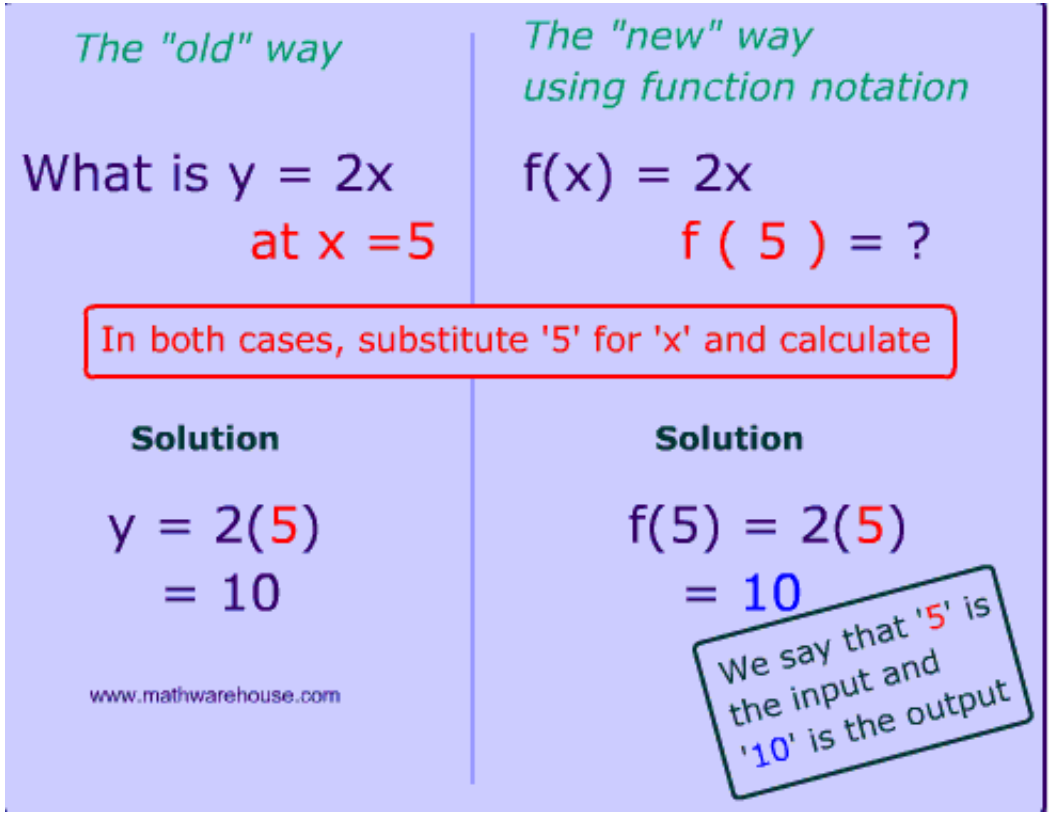
f(5) = 2(5)
= 10

We say that '5' is the input and '10' is the output

www.mathwarehouse.com

Practice Evaluating Functions!

Type into y = and use 2nd graph to look at the table, find value at x =



Regents Ready!!!
Aug Regents Simplify Radical

2 Given $f(x) = 3x - 5$, which statement is true?

(1) $f(0) = 0$

(2) $f(3) = 4$

(3) $f(4) = 3$

(4) $f(5) = 0$

6) Evaluate a Function

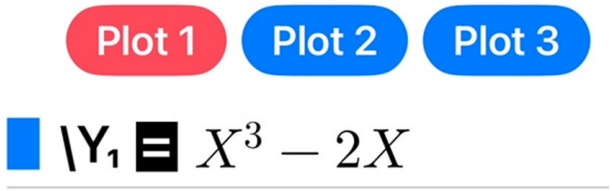
3 Which point is a solution to $y = x^3 - 2x$?

(1) $(-3,-21)$ (3) $(1,1)$

(2) $(-2,10)$ (4) $(4,2)$

- **Steps:**

1) **Type into y =**



2) **2nd Graph for Table**

ANS: 1

X	Y_1
-4	-56
-3	-21
-2	-4

Regents Practice

16 If $f(x) = 3 - x^2$, find $f(-2)$.

21 If $f(x) = 2x^3 + 4x^2$, find $f(-3)$.

23 If $f(x) = \sqrt{25 - x^2}$, find $f(3)$.

- **Steps:**

1) **Type into y =**

2) **2nd Graph for Table to**

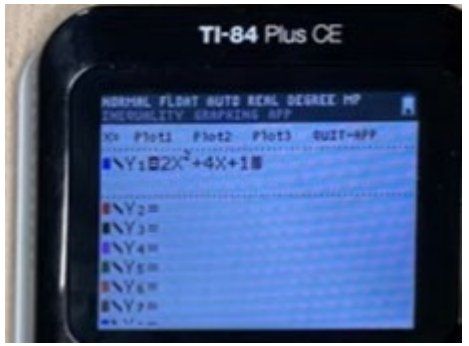
1 If $f(x) = |x^3 - 3|$, then $f(-1)$ is equivalent to

1) 0
2) 2
3) −2
4) 4

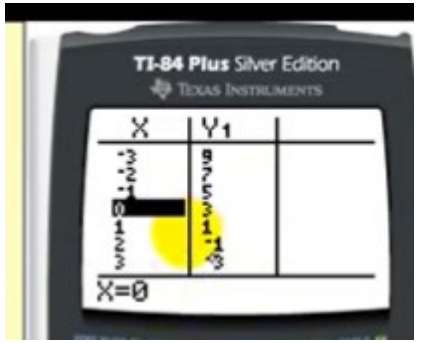
7) Graph a Parabola (Quadratic)

Graph y = $2x^2 + 4x + 1$

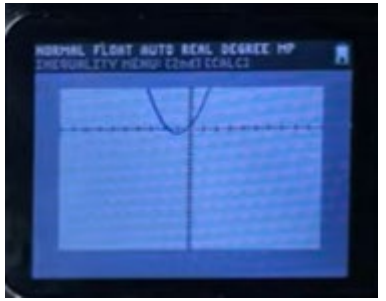
1. Go to y= and type in calculator



3. Hit 2nd Graph; Make a Table and plot the points on graph



4. Hit “Graph” to graph the line



Video Link:
https://www.youtube.com/watch?v=oWtZAwaO7uY

Graph y = $x^2 + 3x - 10$

Regents Practice

- **Steps:**

1) **Type into y =**
2) **2nd Graph for Table or Graph to match**

Graphing:
Finding the Zeros
(aka Solutions)

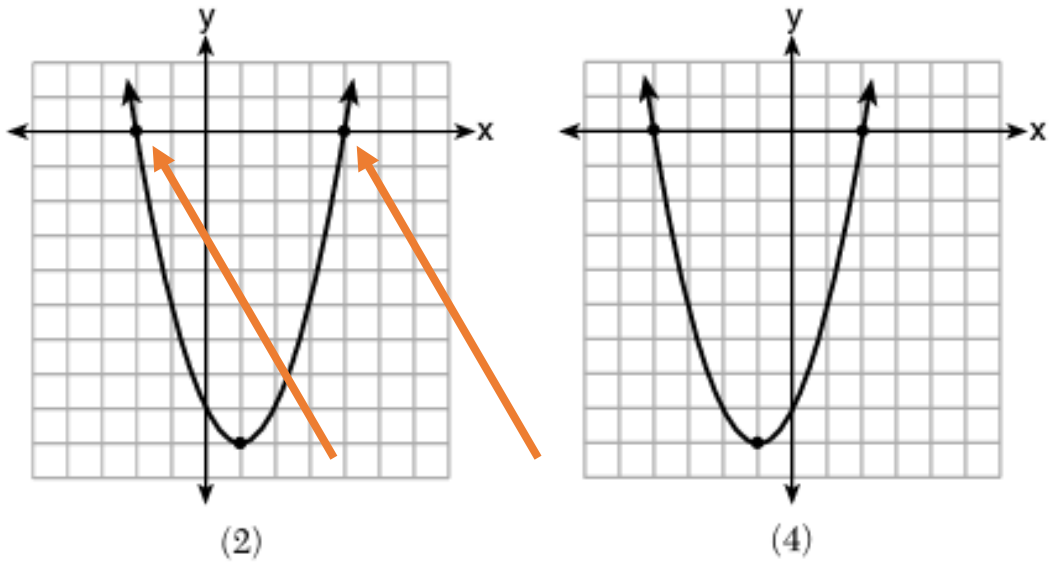
- **Steps (if equation):**

1) Type in Calculator
2) See what x has a y value of 0!

6 Which function has zeros of -4 and 2?

$f(x) = x^2 + 7x - 8$ (1)

$g(x) = x^2 - 7x - 8$ (3)



(2) (4)

- **Steps (if a graph):**

Solutions are where the graph crosses the x axis

9 The zeros of the function $f(x) = 2x^2 - 4x - 6$ are

(1) 3 and -1

(2) 3 and 1

(3) -3 and 1

(4) -3 and -1

Regents Practice

- **Steps (if equation):**

1) **Type in Calculator**

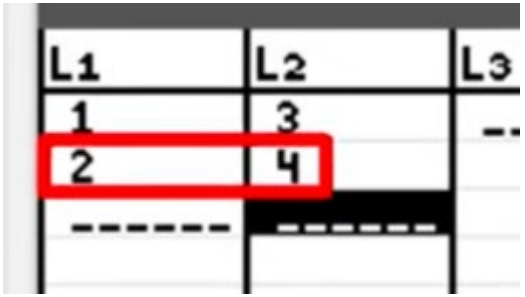
2) **See what x has a y value of 0!**

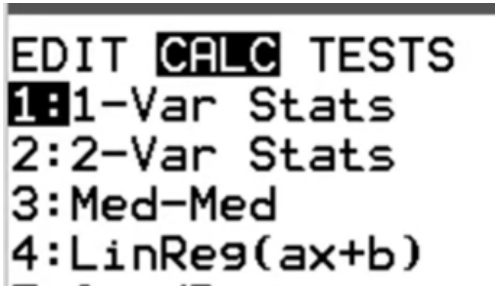
- **Steps (if a graph):**

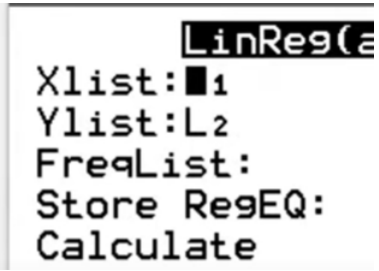
Solutions are where the graph crosses the x axis

2)

8) Write the Equation of the Line







y=ax+b
a=1
b=2

Write the Equation of a line with points (1,3) and (2,4)

Steps:

Stat, Edit (Type in x,y values),
Stat, Calc “4”

Write Equation: y = 1x + 2

Steps:

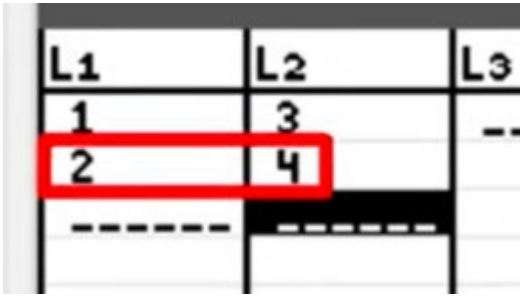
Stat, Edit (Type in x,y values),
Stat, Calc “4”

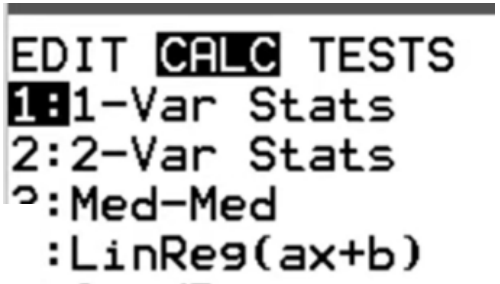
Video Link:
https://www.youtube.com/watch?v=DbN6AJdevRg

8) Write the Equation of the Line

8 Which equation represents the line that passes through the points $(-1,-2)$ and $(3,10)$?

11 Which equation represents the line that passes through the points $(1,1)$ and $(-2,7)$?





y=ax+b
a=1
b=2

Steps:

Stat, Edit (Type in x,y values), Stat, Calc "4"

Video Link:
https://www.youtube.com/watch?v=DbN6AJdevRg

9) Exponential Equations

Steps:

Stat, Edit (Type in x,y values), Stat, Calc “0”

Write Equation

Video Link:
https://www.youtube.com/watch?v=TkMQ5n6vWGg

16 Which function is shown in the table below?

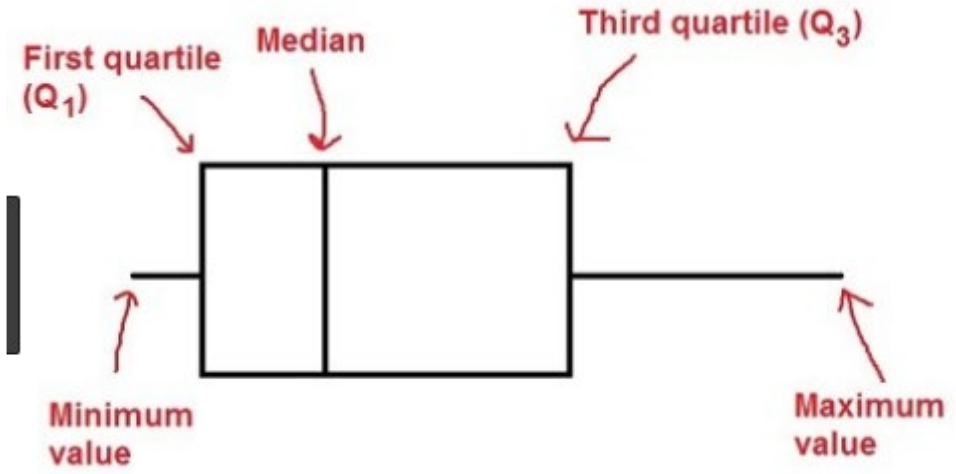
x	f(x)
−2	$\frac{1}{9}$
−1	$\frac{1}{3}$
0	1
1	3
2	9
3	27

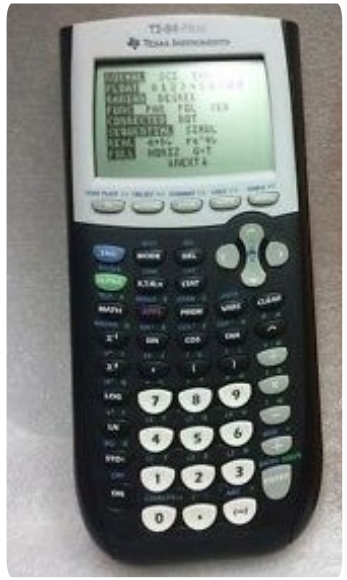
(1) $f(x) = 3x$

(2) $f(x) = x + 3$

(3) $f(x) = -x^3$

(4) $f(x) = 3^x$

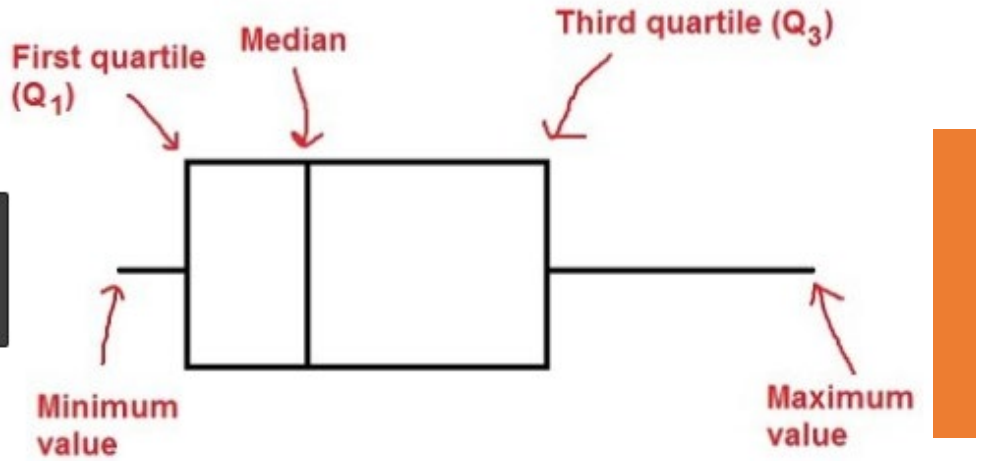




10) Box Plot

- **Steps:**
  - **Stat, Edit, Stat, Calc "1"**
  - **Scroll down to find 5 key Numbers for a Box Plot**
- **Min, Q1, Med, Q3, Max**
- **3. Draw # Line Make box with Med, Q1, Q3**
- **4. Draw Whiskers w Min, Max**
- **5. Label**

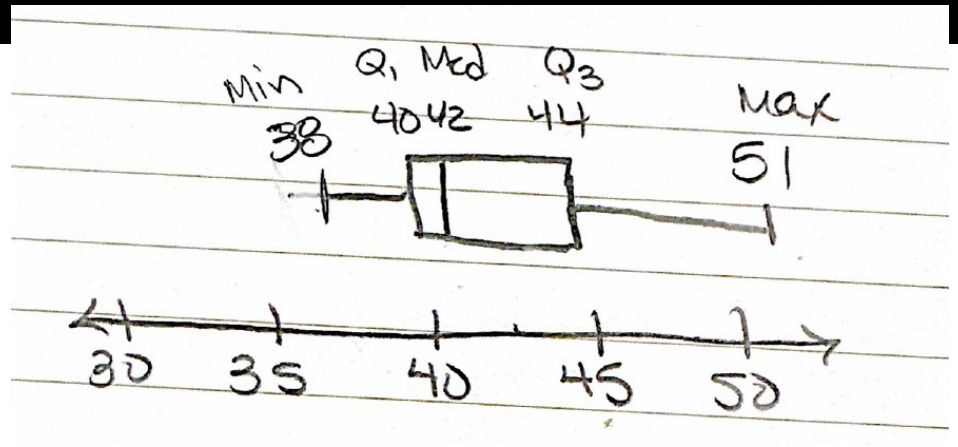
10) Box Plot



Box Plot (Box and Whisker Plot) in the TI-84

Starting Salaries of 10 New Hires (in $1000s)

38, 39, 41, 41, 42, 42, 43, 44, 44, 51



Steps:

1. Stat, Edit, Stat, Calc "1"

Min: 38

Q1: 40

Median: 42

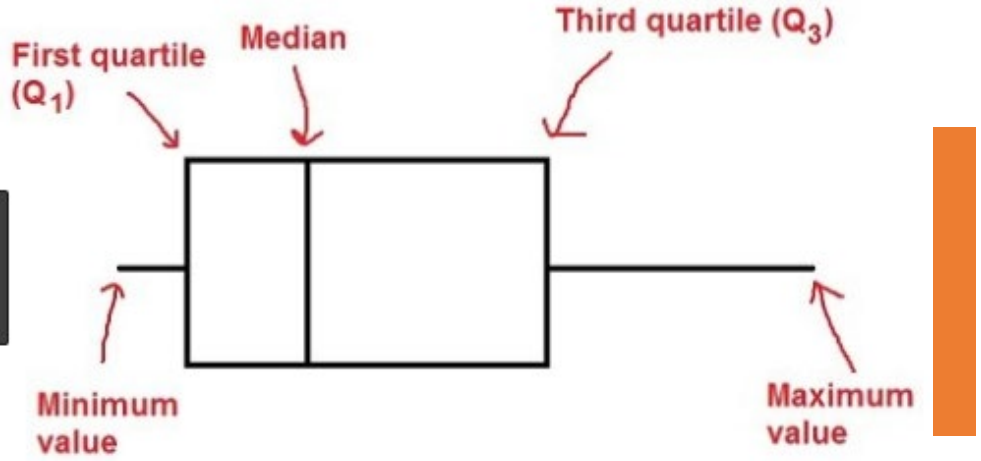
Q3: 44

Max: 51

Video Link

https://www.youtube.com/watch?v=8Hae-15FkUc

Regents Q1!



5 The test scores from Mrs. Gray's math class are shown below.

72, 73, 66, 71, 82, 85, 95, 85, 86, 89, 91, 92

Construct a box-and-whisker plot to display these data.

Min:

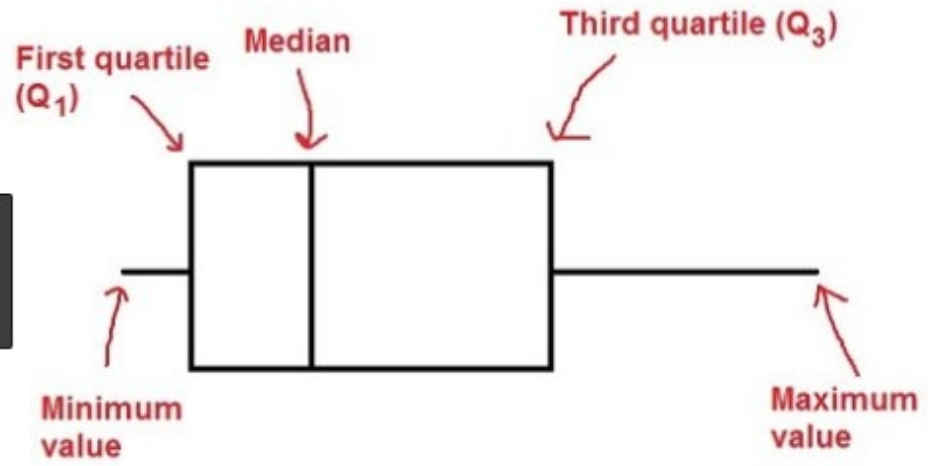
Q1:

Median:

Q3:

Max:

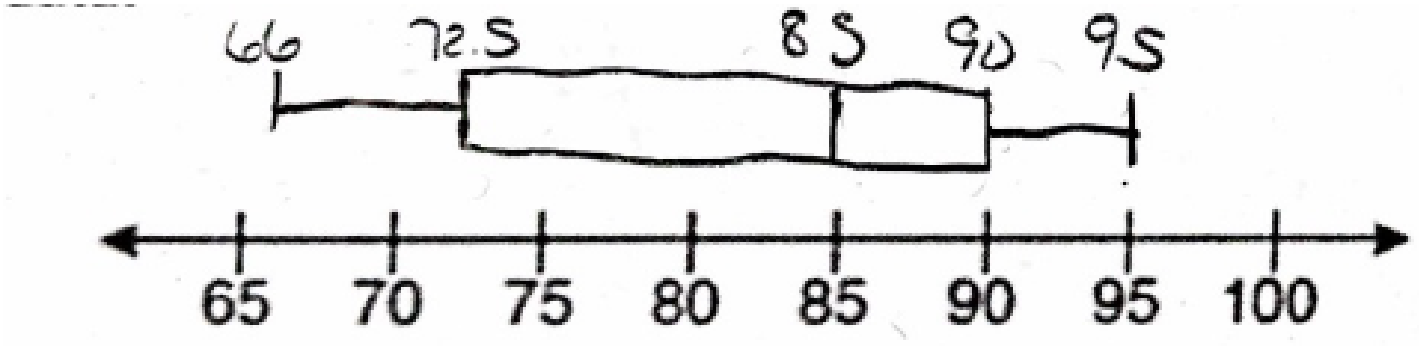
Regents Q1 Answer



5 The test scores from Mrs. Gray's math class are shown below.

72, 73, 66, 71, 82, 85, 95, 85, 86, 89, 91, 92

Construct a box-and-whisker plot to display these data.



Min: 66

Q1: 72.5

Median: 85

Q3: 90

Max: 95


Find
purpose
Deal with
challenges and
problem
Live dreams
Lack of
self-confidence
COMFORT
ZONE
Feel safe and
in control
FEAR
ZONE
Find
excuses
Be affected
by others' opinions
LEARNING
ZONE
Acquire
new skills
GROWTH
ZONE
Set new
goals
Extend your
comfort zone
Conquer
objectives