

25.4 Solve Cube Root Equations & Graphing Calculators

Cube Root Equations

Isolate the radical/cube root, then cube both sides.

* Remember, negative #'s in cube roots are O.K.

Ex #1 Solve $4\sqrt[3]{2x-1} - 4 = 3$.

$$4\sqrt[3]{2x-1} = 7$$

$$(\sqrt[3]{2x-1})^3 = \left(\frac{7}{4}\right)^3$$

$$2x-1 = \frac{343}{64}$$

$$2x = \frac{343}{64} + 1$$

$$x = \frac{407}{128}$$

Ex #2 $4 + (x-1)^{1/3} = 2$

$$4 + \sqrt[3]{x-1} = 2$$

$$(\sqrt[3]{x-1})^3 = (-2)^3$$

$$x-1 = -8$$

$$x = -7$$

Ex #3 $7\sqrt[3]{2x+5} = 21$

$$\sqrt[3]{2x+5} = 3$$

$$2x+5 = 27$$

$$2x = 22$$

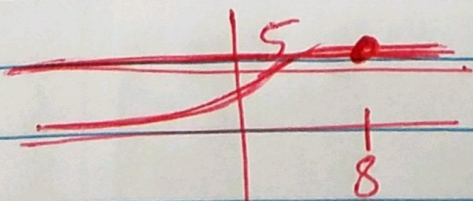
$$x = 11$$

Using a Graphing Calculator

One of the most important uses of a graphing calculator is to find solutions of an equation using graphs. If you graph both sides of an equation, the solutions are the intersection points.

Ex #4 Use a graphing calculator to solve:

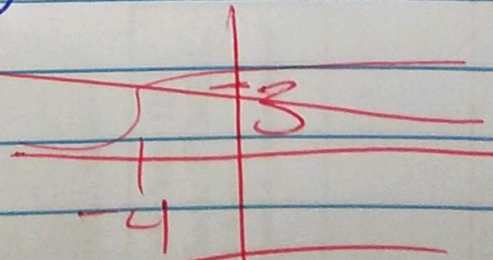
a) $\sqrt[3]{x} + 3 = 5$



$$x = 8$$

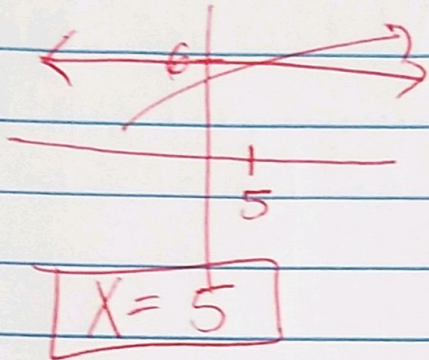
$$y = 5$$

b) $2 + \sqrt[3]{x+5} = 3$

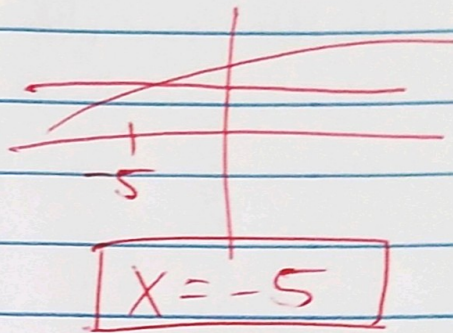


$$x = -4$$

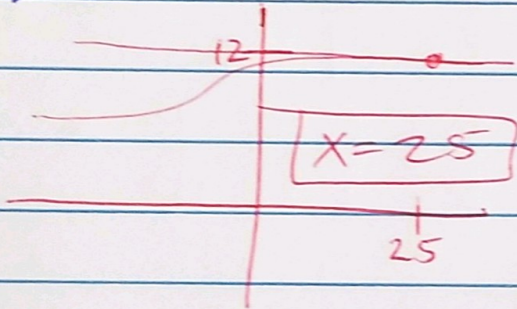
$$c) 2\sqrt{x+4} = 6$$



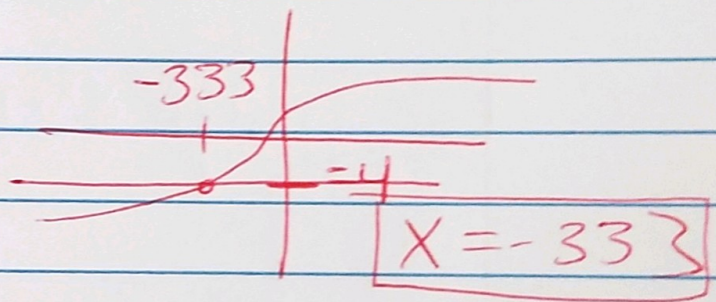
$$d) 2 = \sqrt{x+9}$$



$$e) \sqrt[3]{x+2} + 9 = 12$$



$$f) \sqrt[3]{3x-1} + 6 = -4$$

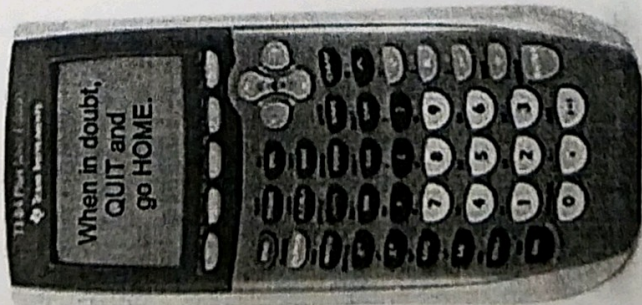


A53: pg. 399 #5-9, 11-15

Save This Sheet!

TI-83+/84+ Quick Reference Sheet

Algebra 2 Level



Calculator ID #:
Choose 2nd MEM,
#1 About
ID****_****_****

To Graph Lines (functions):

1. Enter equation in Y=.
2. Use ZOOM #6 (will give standard 10 x 10 window).
3. Use GRAPH to display graph.
4. Use WINDOW (to create your own screen settings).
5. Use TRACE to move spider on graph - arrow up/down between graphs

To Find Intersection Pts:

1. Graph both equations.
2. Use CALC menu (2nd TRACE)
Choose #5 Intersect
3. Move near the intersect location.
4. Simply press <ENTER> 3 times to reveal the answer.

If you are looking for more than one intersection point, you must repeat this process.

Logs and Exponents:

1. The LOG key is log base 10.
2. To enter: $\log_4 64$ use $\frac{\log 64}{\log 4}$
2. $27^{\frac{1}{3}}$ is $27^{(1/3)}$ remember ()

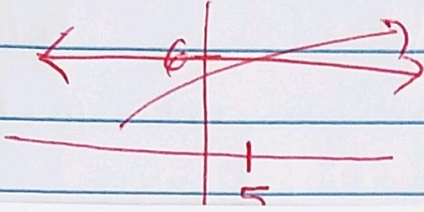
Summations:

$$\sum_{k=2}^7 (2k + 2)$$

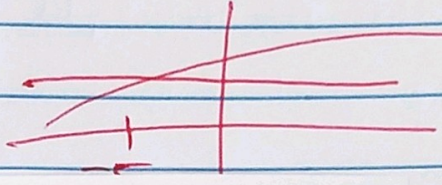
Enter sum(seq(2x+2, x, 2, 7, 1))

- 2nd STAT(LIST) - MATH - #5 sum
 - 2nd STAT(LIST) - OPS - #5 seq
- The format for seq: *expression, variable, starting value, ending value, increment.*

c) $2\sqrt{x+4} = 6$



d) $2 = \sqrt{x+9}$



$6 = -4$

$x = -33$

$11-15$