

**First Method: Factoring**

TASK 1: Solve the two problems below by factoring. Show your work.

$x^2 + 3x + 2 = 0$

$(x+2)(x+1) = 0$

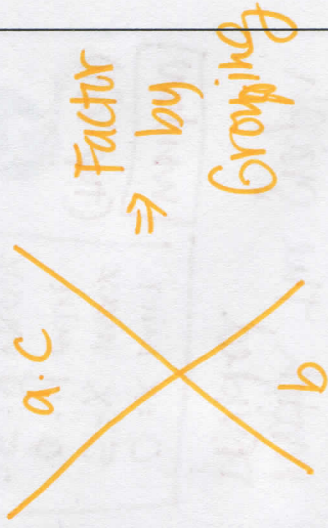
$x+2=0 \quad x+1=0$

$x=-2 \quad x=-1$

$x = -2, -1$

~~$16 \times 4$~~   
 ~~$4 \times 8$~~   
 $8x^2 + 8x + 4 = 0$   
 $(4x^2 + 4x) + (4x + 4) = 0$   
 $4x(x+1) + 4(x+1) = 0$   
 $(4x+4)(x+1) = 0$   
 $4x+4=0 \quad x+1=0$   
 $x=-1 \quad x=-1$

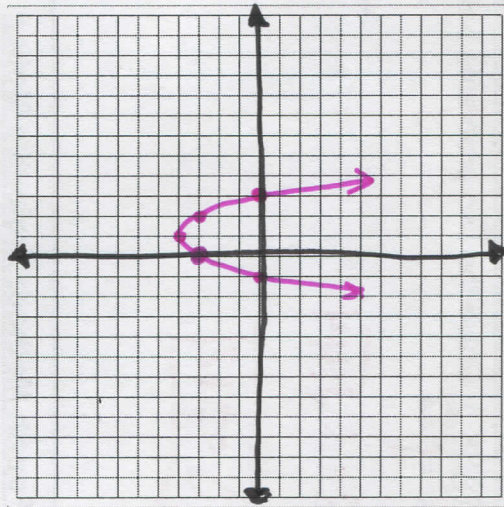
**BIG X Method**



**Second Method: Graphing**

TASK 2: Sketch the graph and state the roots and x-intercepts.

$-x^2 + 2x + 3 = 0$



roots:  $x = -1, 3$   
 x-int:  $(-1, 0)$  &  $(3, 0)$

**Calculator Steps**

2nd Trace

zeros: roots etc.

min/max: vertex

Value:  $x=0 \rightarrow y\text{-int}$

**Third Method: Square Root Method**

TASK 3: Solve the two problems below using the square root method.

$s^2 = 144$

$s = \pm \sqrt{144}$

$s = \pm 12$

$4(x-1)^2 + 2 = 10$

$4(x-1)^2 = 8$

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

$x-1 = \pm \sqrt{2}$

$x = 1 \pm \sqrt{2}$

Reminders to Myself

- $b = 0$  or  $(x-)^2$
- SADMEP
- $\pm \sqrt{\quad}$
- Perfect Squares  
1, 4, 9, 16, 25, 36, 49, etc....

**Fourth Method: Projectile Motion**

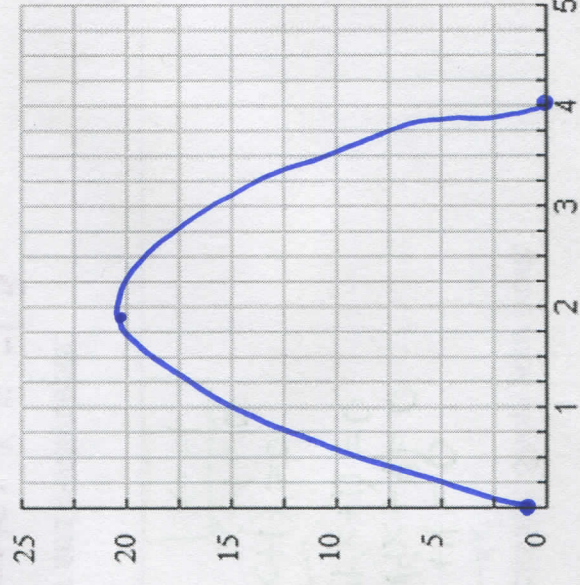
A tennis player hits a ball 1 meter above the ground with an initial velocity of 19.35 meters per second. The height from the ground in meters can be found using the function  $f(x) = -4.9x^2 + 19.35x + 1$ , where  $x$  is the time in seconds.

Create a table:

x	0	1	2	3	4
y	-1	15.45	20.1	14.3	0

Create a graph and answer the questions:

- What is the maximum height?  $(1.97, 20.1) \rightarrow \approx 20.1m$
- When does it reach its max height?  $1.97 \text{ SECS}$
- When does it hit the ground?  $4 \text{ SECS}$
- Where is it at 1 second?  $15.45m$



TIPS to ME

If graph is provided, make my calc. window match the graph provided.

WINDOW (TOP LEFT)

0 : x min  
5 : x max  
0 : y min  
25 : y max

Still need help with: