

BE-1B WEDNESDAY 1-9-08

① Graph $X = -1$

② In the quadratic function

$$y = x^2 + 2x - 15$$

What is a, b, c ?

③ Using the values for a, b
from 2, what is $\frac{-b}{2a}$

Take out homework $\Rightarrow$

Solve $x^2 + 2x - 15 = 0$

Graph $x^2 + 2x - 15 = y$

Solve & graph
for
 $y=0$

$$y = x^2 + 2x - 15$$

$$\text{sum} = b = 2$$

$$\text{prod} = ac = -15$$

$$\begin{array}{c} -3 \quad +5 \end{array}$$

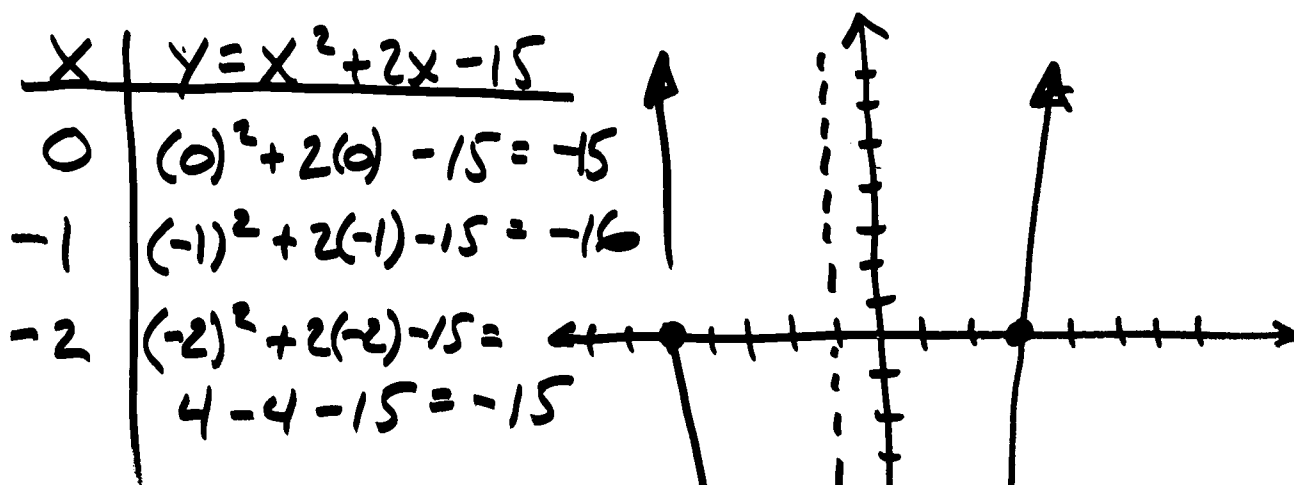
$$0 = x^2 - 3x + 5x - 15$$

$$0 = x(x-3) + 5(x-3)$$

$$0 = (x-3)(x+5)$$

$$\boxed{x = 3, -5}$$

So the parabola crosses the x-axis
at $(3, 0)$, $(-5, 0)$. Find more points.



NOTICE THE

LINE $x = -1$

⇒ AXIS OF SYMMETRY

$$\text{AOS is } x = \frac{-b}{2a}$$

Check
with
TI-82

Some properties of the quadratic function, let's use the homework function:

$$y = x^2 + 2x - 15$$

$$\text{AOS: } x = \frac{-b}{2a} = \frac{-(2)}{2(1)} = -1$$

$$\begin{array}{l|l} \text{Vertex: } x & y = x^2 + 2x - 15 \\ -1 & y = (-1)^2 + 2(-1) - 15 \\ & y = 1 - 2 - 15 = -16 \end{array}$$

$$\text{Vertex: } (-1, -16)$$

up or down? if a is + 
if a is - 

Since $a = +1 \Rightarrow$ 

So vertex is
A minimum



$a = \text{negative}$

$a = \text{positive}$



frown



SMILE

LET'S use THE AOS, vertex, up/down,
and symmetry to graph

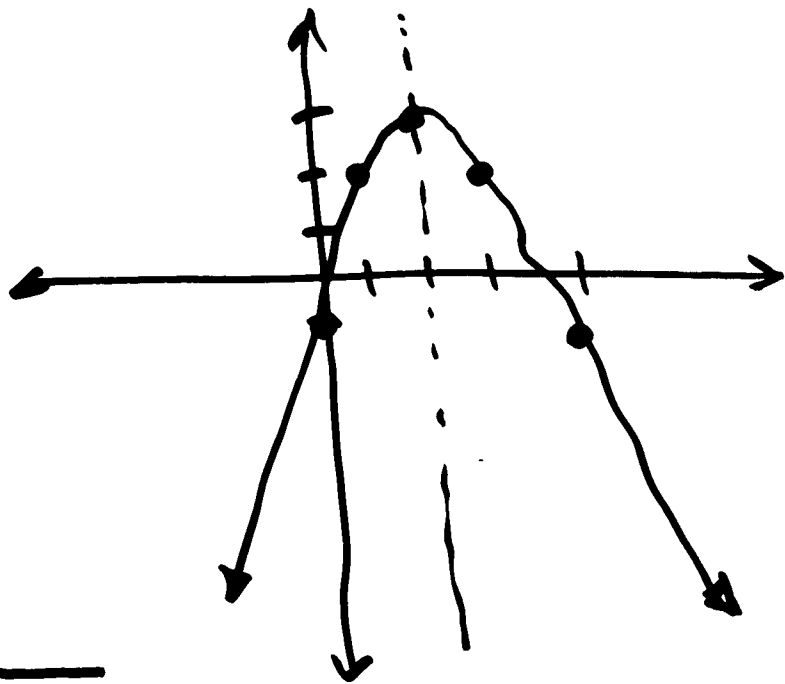
EX 2
pg 525

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

- $a = -1$
- $b = 4$
- $c = -1$



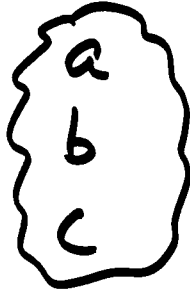
$$x = \frac{-b}{2a} = \frac{-4}{-2} = 2$$



x	$-x^2 + 4x - 1$
2	$-(2)^2 + 4(2) - 1$ $-4 + 8 - 1 = 3$
1	$-(1)^2 + 4(1) - 1$ $-1 + 4 - 1 = 2$
0	-1

Pg 528 # 10 - 15

Find: $\Rightarrow$  or 



$\Rightarrow$ AOS

$\Rightarrow (V_x, V_y)$

} CK w/
TI-82

Homework: • Read Ch 10-1

• Pg 528 # 18, 21, 24