

Advanced Math

1-4

(Day 2)

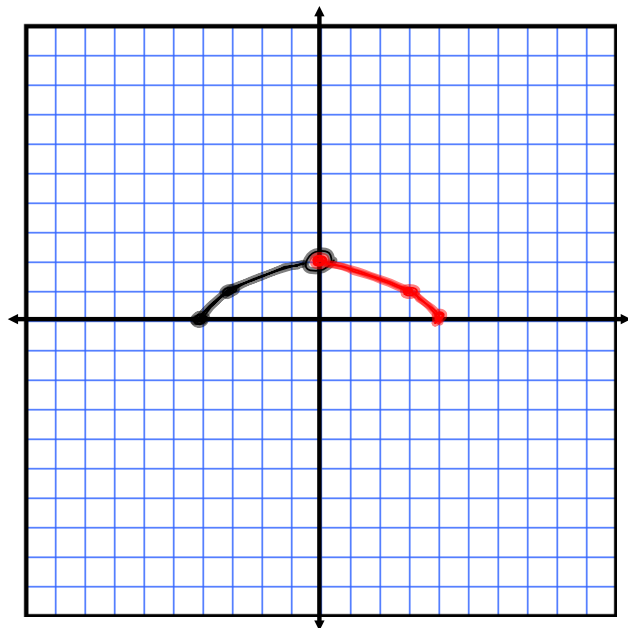
Analyzing graphs of Functions

Graph the function.

$$58) f(x) = \begin{cases} \sqrt{4+x}, & x < 0 \\ \sqrt{4-x}, & x \geq 0 \end{cases}$$

$\sqrt{4+x}$	
x	y
0	2
-1	$\sqrt{3}$
-3	1
-4	0
-5	0

$\sqrt{4-x}$	
x	y
0	2
1	$\sqrt{3}$
3	1
4	0
5	0



Greatest Integer Function

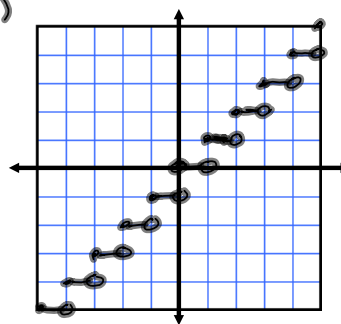
$$f(x) = \llbracket x \rrbracket$$

x	y
0	0
1	1
2	2
-1	-1
1.2	1
1.6	1
1.9	1
-1.1	-2

calculator $y_1 = \text{int}(x)$

domain: \mathbb{R}

range: \mathbb{Z}
(integers)



The greatest integer function is officially:

The greatest integer not greater than the input.

What is the greatest integer not greater than 1.2?
The answer is 1.

What is the greatest integer not greater than -1.1?
The answer is -2! (Think carefully)

67) The cost of a telephone call between two cities is \$0.65 for the first minute and \$0.40 for each additional minute.

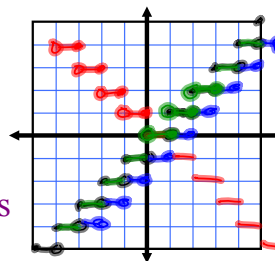
a) It is required that a model be created for the cost C of a telephone call between the two cities lasting t minutes. Which of the following is the appropriate model? Explain.

$$C_1(t) = 0.65 + 0.40 \llbracket t - 1 \rrbracket$$

$$C_2(t) = 0.65 + 0.40 \llbracket -(t - 1) \rrbracket$$

2min

$\llbracket t \rrbracket$



The difference between $\llbracket t \rrbracket$ and $\llbracket -(t - 1) \rrbracket$ is it switches the open circle from the right sides to the left sides.

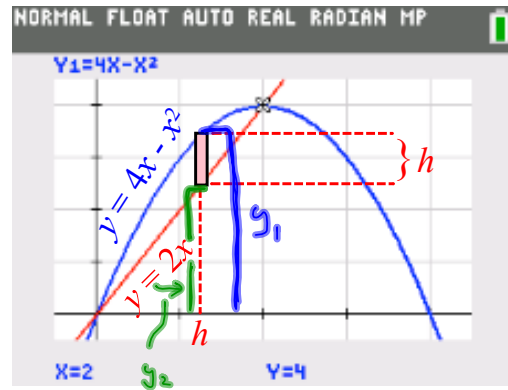
b) Graph the appropriate model. Determine the cost of a call lasting 18 minutes and 45 seconds.

$$0.65 - .40 \llbracket (18 \text{ min } 45 \text{ sec} - 1) \rrbracket$$

$$0.65 - .40 \llbracket -17 \frac{3}{4} \text{ min} \rrbracket \rightarrow 0.65 - .40(-18) = 0.65 + 7.20 = \boxed{\$7.85}$$

73) Write the height h of the rectangle as a function of x .

$$h(x) = (4x - x^2) - (2x)$$



Assignment:

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57, 59, 61, 62,

69-70 all,

72-80 even.