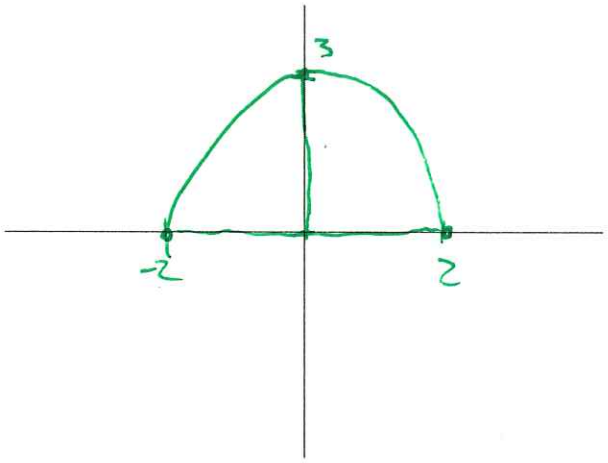
Name: Answer Key

Math 1410: Quiz 1

Please show all your work for computations, and write your final answers in the boxes.

1. Sketch a graph of a function whose domain is $[-2, 2]$ and whose range is $[0, 3]$. Draw on the axes the domain and range as intervals, and clearly label the endpoints of the intervals. The function can look however you want, but it should have the correct domain and range.



Many possible answers, this is just one

2. Find the x-intercept of the function $h(x) = 3x - 1$. [Hint: Remember that the x-intercept is a *point*, so you should write both the x- and y-coordinates.]

x-intercept is
$\left(\frac{1}{3}, 0\right)$

$0 = 3x - 1$

$1 = 3x$

$\frac{1}{3} = x$

3. Sketch a graph of the following function, identifying the endpoint(s) for each case. Determine the initial value of $f(x)$ and calculate $f(2)$.

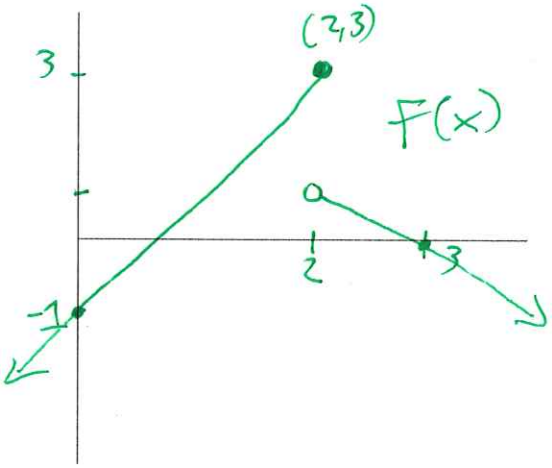
$$f(x) = \begin{cases} 2x - 1 & \text{if } x \leq 2 \\ -x + 3 & \text{if } 2 < x \end{cases}$$

$2 \cdot 0 - 1 = -1$

$2 \cdot 2 - 1 = 3$

$-2 + 3 = 1$

$-3 + 3 = 0$



initial value = -1

$F(0) = 2 \cdot 0 - 1 = -1$

$f(2) = 3$

$F(2) = 2 \cdot 2 - 1 = 3$

4. A function $g(t)$ is given as a table below. Compute $g(1)$, $g(4)$, and the average rate of change from $t = 1$ to $t = 4$.

$g(1) = 1$

$g(4) = 16$

ARC from 1 to 4: 5

t	$g(t)$
0	0
1	1
2	4
3	9
4	16
5	25
6	36

$$ARC = \frac{g(4) - g(1)}{4 - 1} = \frac{16 - 1}{4 - 1} = \frac{15}{3} = 5$$