Name: _____ Date: _____ IB Math A&A SL

Lesson 1.3 - Definition of a Function, evaluating functions using equations, graphs and charts.

I. Identifying Functions

Recall from your previous math courses, what is your definition of a **function**? How do you test if something is a **function**?

Your Definition:

1. Which of the following graphed relationships describe 'y' as a function of 'x'?

$y^2 = x + 2$	$y = |x + 1| - 3$	$x^2 + y^2 = 9$	$y = x^3 - 4x^2 + 2x + 1$
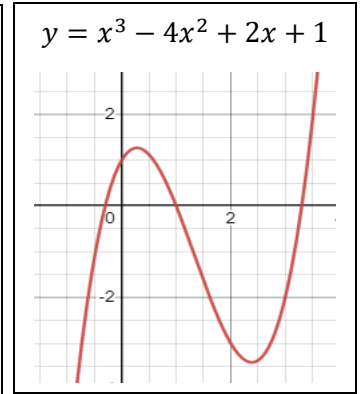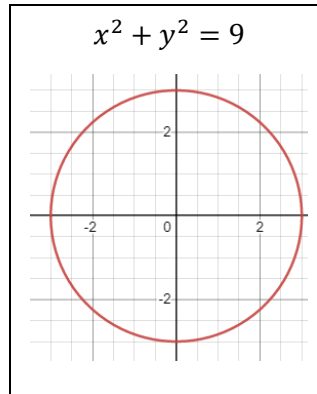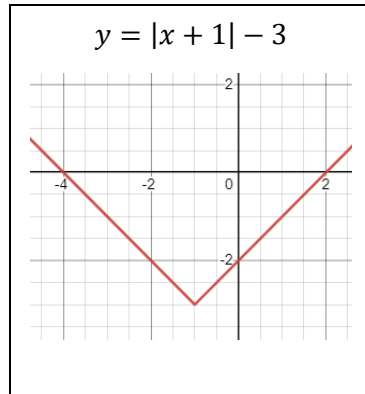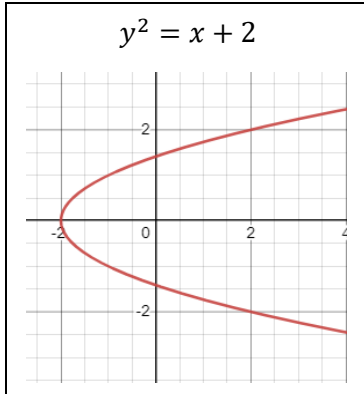
II. Analyzing functions with equations, graphs, and charts

2. $f(t) = t^2 - 2t$

   a. Evaluate $f(3)$

   b. Find all t such that $f(t) = 3$

   c. Evaluate $f(2x)$

   d. If $x = 2$, find $f(2x)$

   e. Find all x such that $f(x) = 0$

3. $g(t) = 1 - \sqrt{t + 5}$

    a. Evaluate $g(-1)$

    b. Evaluate $g(3x - 1)$

    c. If $x = -3$, find $g(2x + 5)$

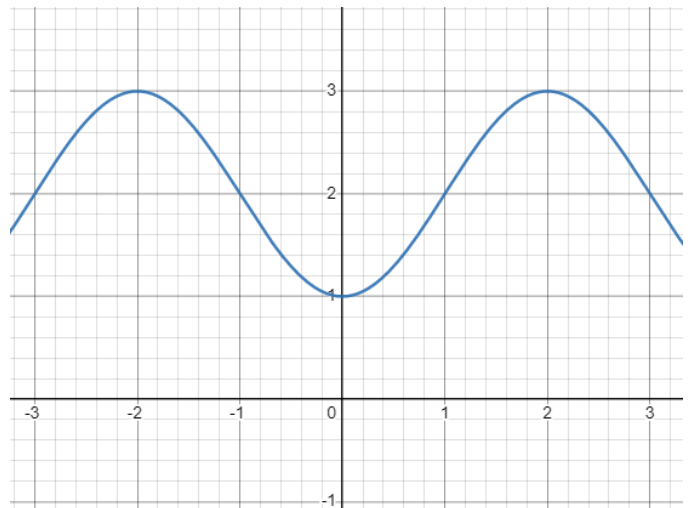   d. Find all x such that $g(x) = 4$

    e. Find all x such that $g(x) = 0$

4. $h(x)$ is graphed to the right.

    a. Find $h(1)$

    b. Find $h(2)$

    c. Find all x such that $h(x) = 1$

    d. Find $h(2x)$ if $x = -1$

5. Use the charts of $f(x)$ and $g(x)$ to the right.2

x	f(x)	g(x)
-3	3	2
-2	0	1
-1	1	-3
0	2	2
1	-1	1
2	4	3
3	-2	-1

   a. Evaluate $f(-1)$

   b. Evaluate $g(2)$

   c. Evaluate $f(3x)$ if $x = -1$

   d. Find all x such that $f(x) = 0$

   e. Find all x such that $g(x + 1) = 1$

6. Find values for x for which $f(x) = g(x)$ if $f(x) = x^4 - 2x^2$ and $g(x) = 2x^2$.

7. Let $f(x)$ be defined as $f(x) = 6x^2 - 7x$. Find values of x for which $f(x) = 20$

8. Let $h(x)$ be defined as $h(x) = \sqrt{x + 1} - 2$. Find all values of x for which $h(x) = x - 3$.