Math 8IB: Patterns, Patterns EVERYWHERE…

NAME: _____

Go to desmos.com …. Start Graphing to plot some of the points shown below.

Check the boxes below that apply to your graphs if the points were connected and extended.

Think about how the dependant variable changes as the x-value increases by 1.

Can you think of a rule? Try it in desmos (write it as y =). Does it work?

1.

x	?
2	1
3	-1
4	-3
5	-5
6	-7
7	-9

a) The points form…

☐　a straight line
☐　a curve

b) If the points were connected and the pattern extended:

☐　it would pass through the y-axis at _____
☐　not pass through the y-axis
☐　passes through the x-axis at _____
☐　not pass through the x-axis

Rule: _____

2.

X	?
-2	4
-1	1
0	0
1	1
2	4
3	9

a) The points form…

☐　a straight line
☐　a curve

b) If the points were connected and the pattern extended:

☐　it would pass through the y-axis at _____
☐　not pass through the y-axis
☐　passes through the x-axis at _____
☐　not pass through the x-axis

Rule: _____

3.

x	?
2	9
3	27
4	81
5	243
6	729
7	2187

a) The points form...

☐ a straight line
☐ a curve

b) If the points were connected and the pattern extended:

☐ it would pass through the y-axis at _____
☐ not pass through the y-axis
☐ passes through the x-axis at _____
☐ not pass through the x-axis

Rule: _____

4.

x	?
2	10
3	13
4	16
5	19
6	22
7	25

a) The points form...

☐ a straight line
☐ a curve

b) If the points were connected and the pattern extended:

☐ it would pass through the y-axis at _____
☐ not pass through the y-axis
☐ passes through the x-axis at _____
☐ not pass through the x-axis

Rule: _____

5.

x	?
2	-4
3	-9
4	-16
5	-25
6	-36
7	-49

a) The points form…

☐ a straight line
☐ a curve

b) If the points were connected and the pattern extended:

☐ it would pass through the y-axis at _____
☐ not pass through the y-axis
☐ passes through the x-axis at _____
☐ not pass through the x-axis

Rule: _____

6.

x	?
2	-4
3	-8
4	-16
5	-32
6	-64
7	-128

a) The points form…

☐ a straight line
☐ a curve

b) If the points were connected and the pattern extended:

☐ it would pass through the y-axis at _____
☐ not pass through the y-axis
☐ passes through the x-axis at _____
☐ not pass through the x-axis

Rule: _____

7.

x	?
2	4
3	10
4	16
5	22
6	28
7	34

a) The points form…

☐ a straight line
☐ a curve

b) If the points were connected and the pattern extended:

☐ it would pass through the y-axis at _____
☐ not pass through the y-axis
☐ passes through the x-axis at _____
☐ not pass through the x-axis

Rule: _____

8.

x	?
2	18
3	54
4	162
5	486
6	1458
7	4374

a) The points form…

☐ a straight line
☐ a curve

b) If the points were connected and the pattern extended:

☐ it would pass through the y-axis at _____
☐ not pass through the y-axis
☐ passes through the x-axis at _____
☐ not pass through the x-axis

Rule: _____