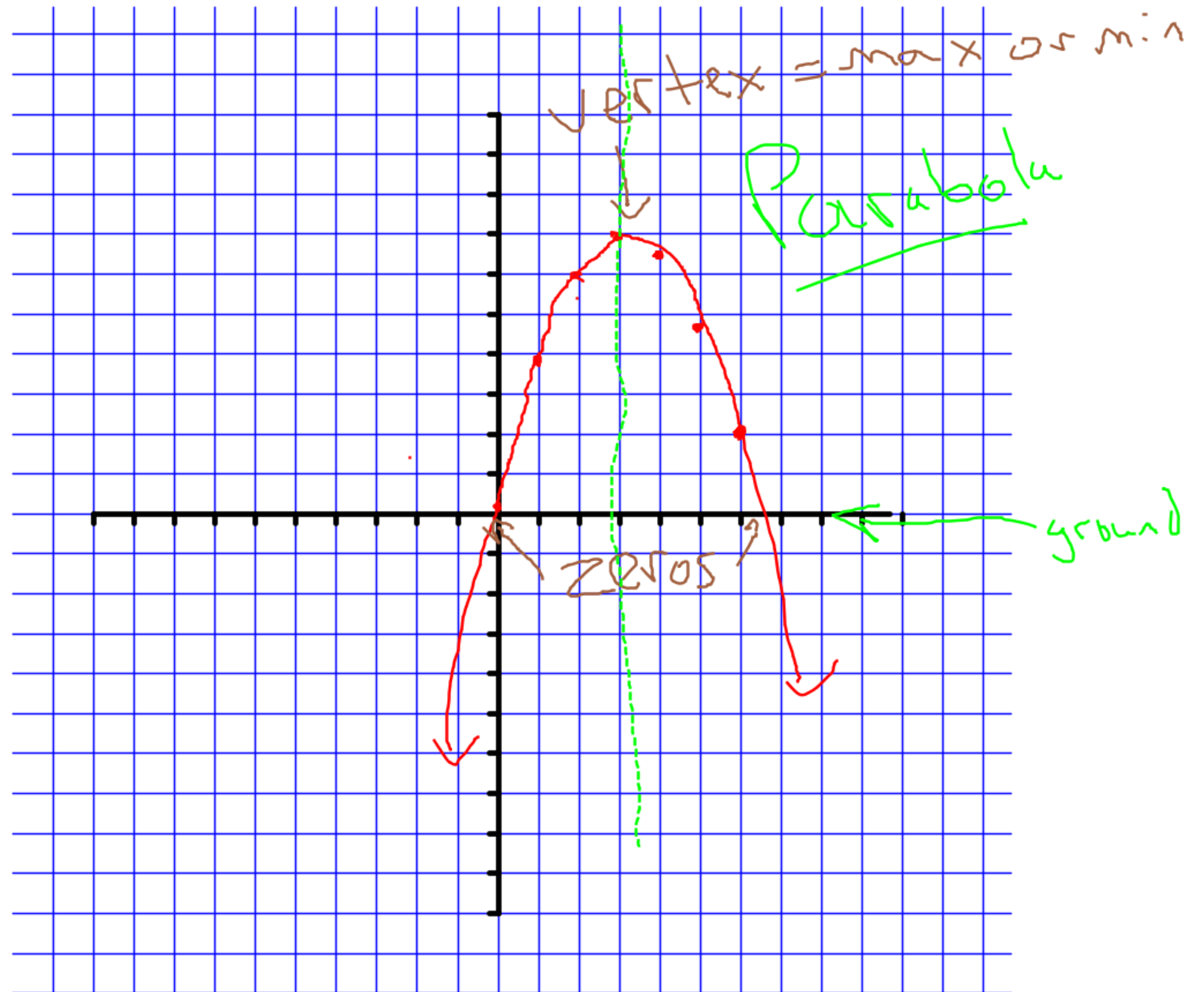


Mathematics 11C

4.1 – Modelling with Quadratic Relations

Mr. D. Hagen

Time ^s	Height ^m
0	0.1
0.5	7.8
1.0	12.0
1.5	13.8
2.0	13.0
2.5	9.75
3.0	4.0



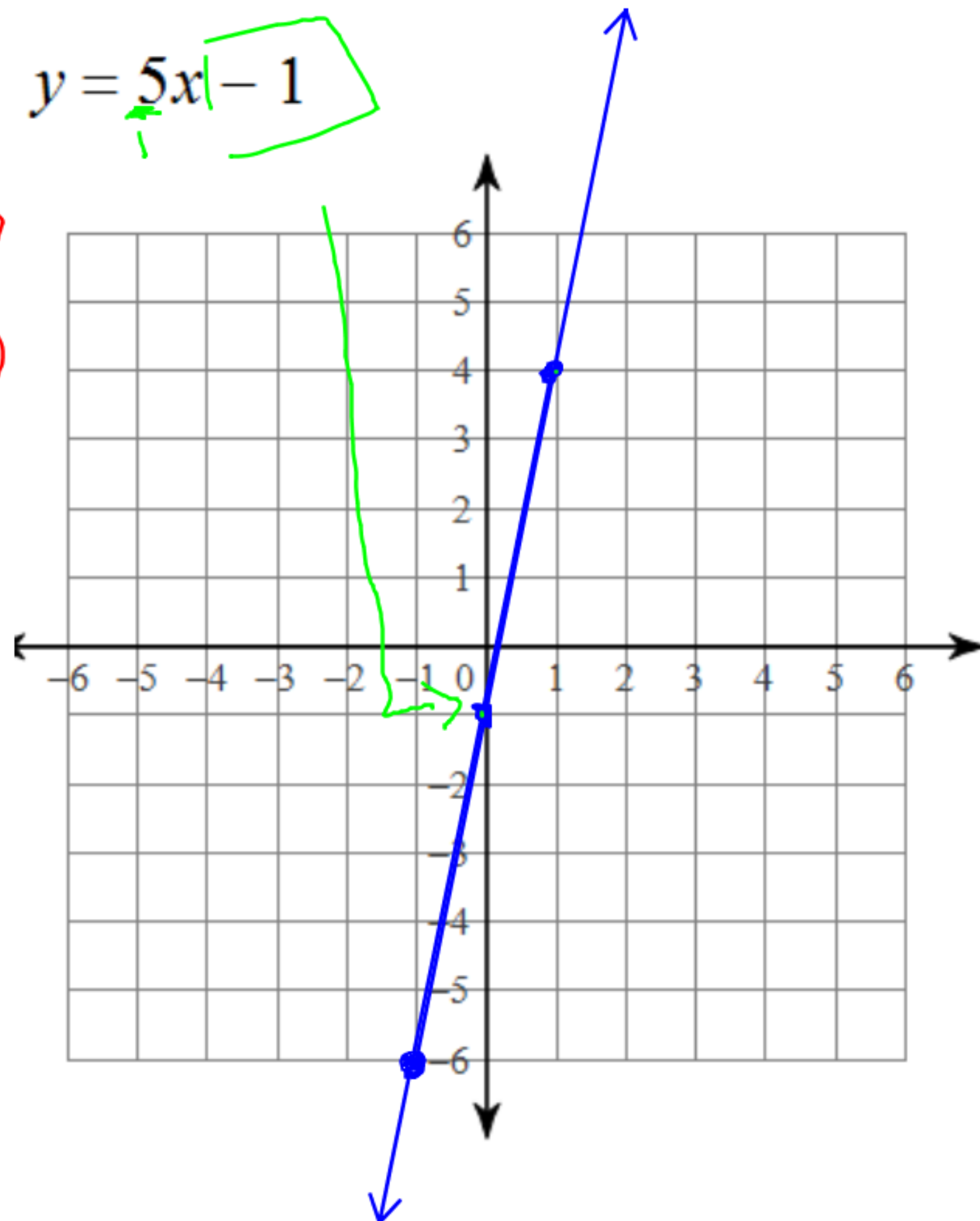
Find the first and second differences

X	Y	1 st	2 nd
0	1		
1	6	5	-2
2	9	3	-2
3	10	1	-2
4	9	-1	-2
5	6	-3	-2
6	1	-5	

line $\Rightarrow$ x
 quadratic $\Rightarrow$ x^2
 cubic $\Rightarrow$ x^3

x	y	
-2	$5(-2) - 1 = -11$	$(-2, -11)$
-1	$5(-1) - 1 = -6$	$(-1, -6)$
0	$5(0) - 1 = -1$	$(0, -1)$
1	$5(1) - 1 = 4$	$(1, 4)$
2	$5(2) - 1 = 9$	$(2, 9)$

$$y = 5x - 1$$



$$y = -2x^2 + 8x - 7$$

X	Y
-2	$-2(-2)^2 + 8(-2) - 7 = -31$
-1	$-2(-1)^2 + 8(-1) - 7 = -17$
0	$-2(0)^2 + 8(0) - 7 = -7$
1	$-2(1)^2 + 8(1) - 7 = -1$
2	$-2(2)^2 + 8(2) - 7 = 1$
3	$-2(3)^2 + 8(3) - 7 = -1$
4	$-2(4)^2 + 8(4) - 7 = -7$
5	$-2(5)^2 + 8(5) - 7 = -17$

