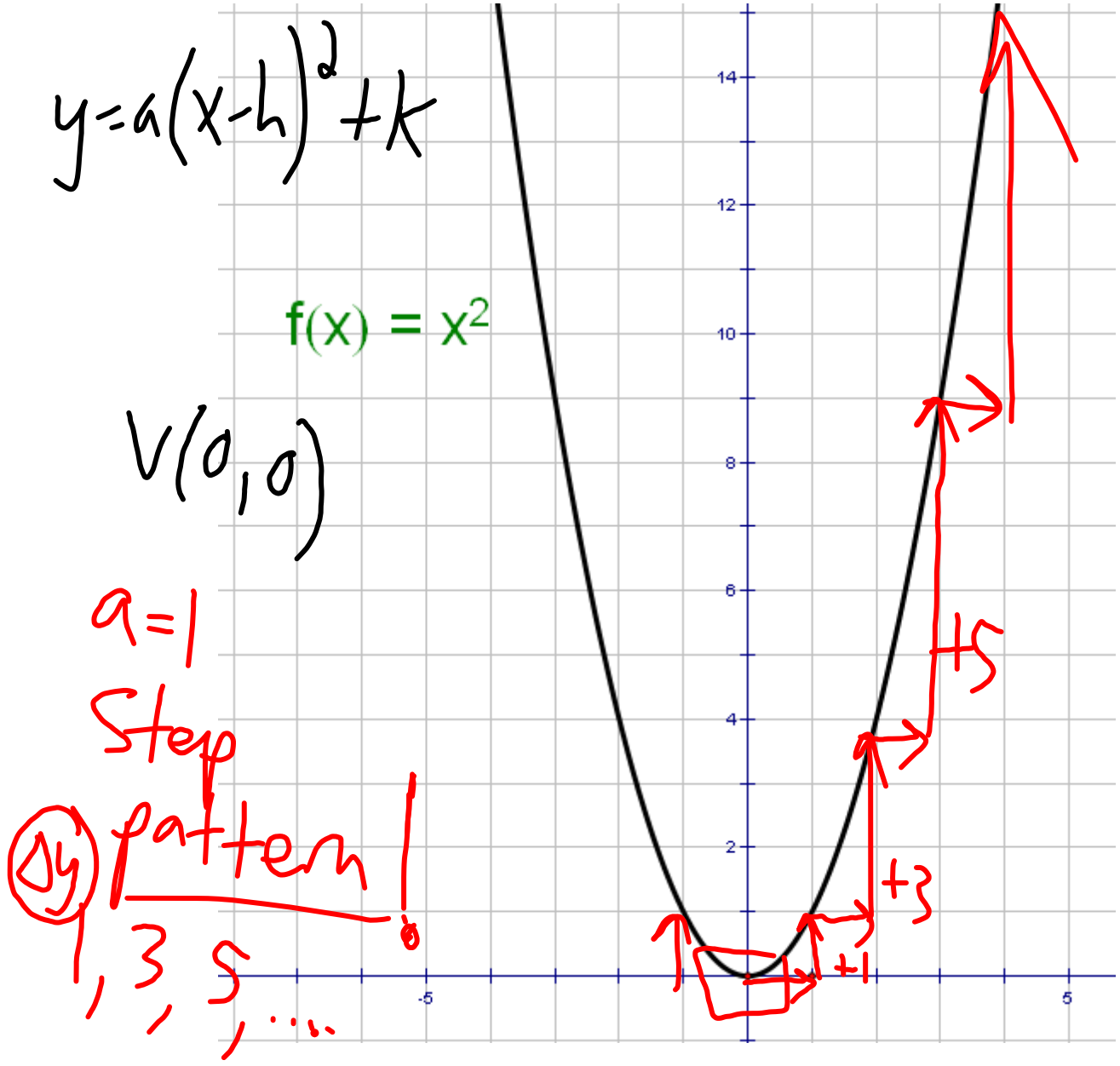
4.2 Vertex Form of a Quadratic Relation pg345 to 356.

$y = a(x-h)^2 + k$

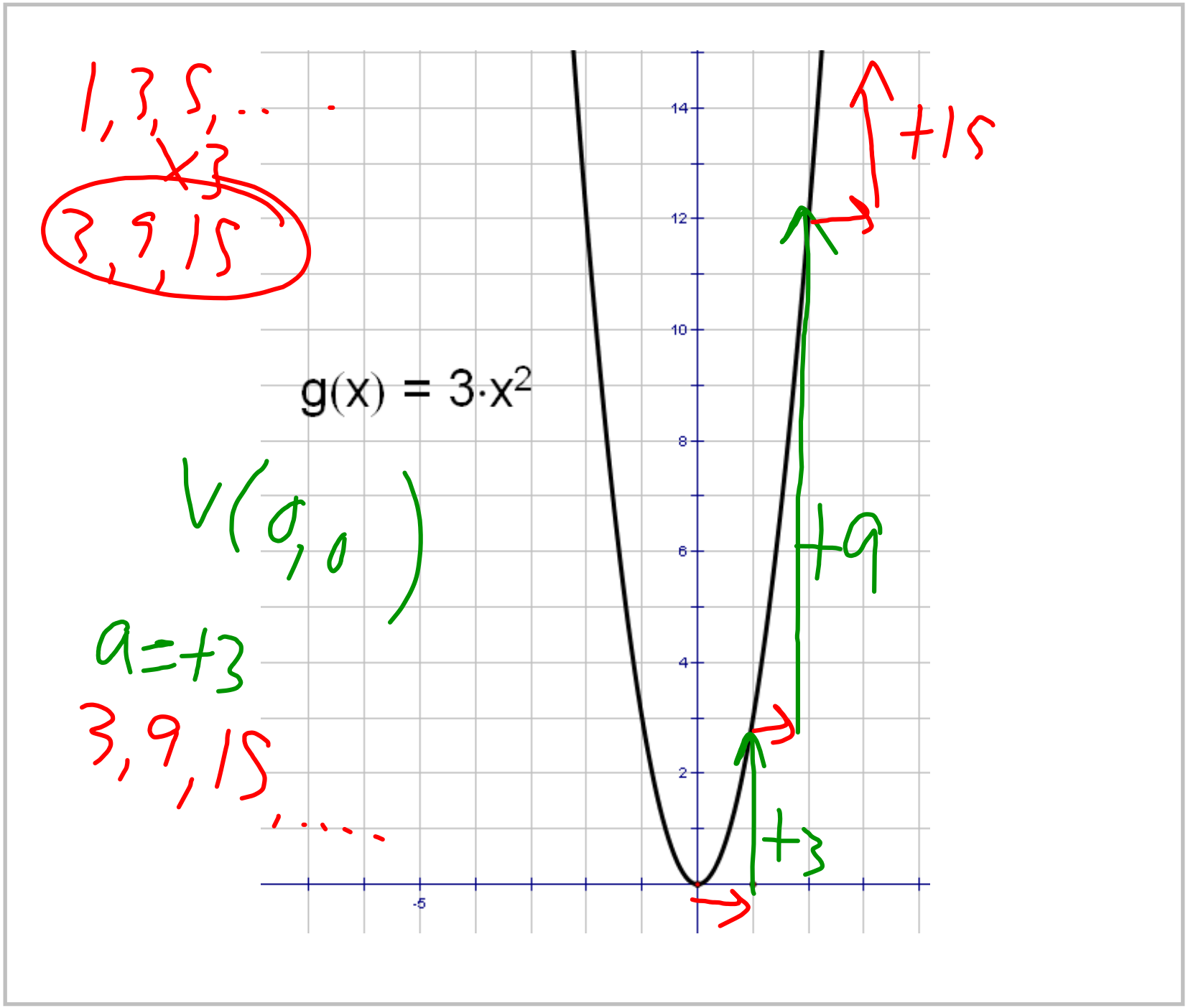


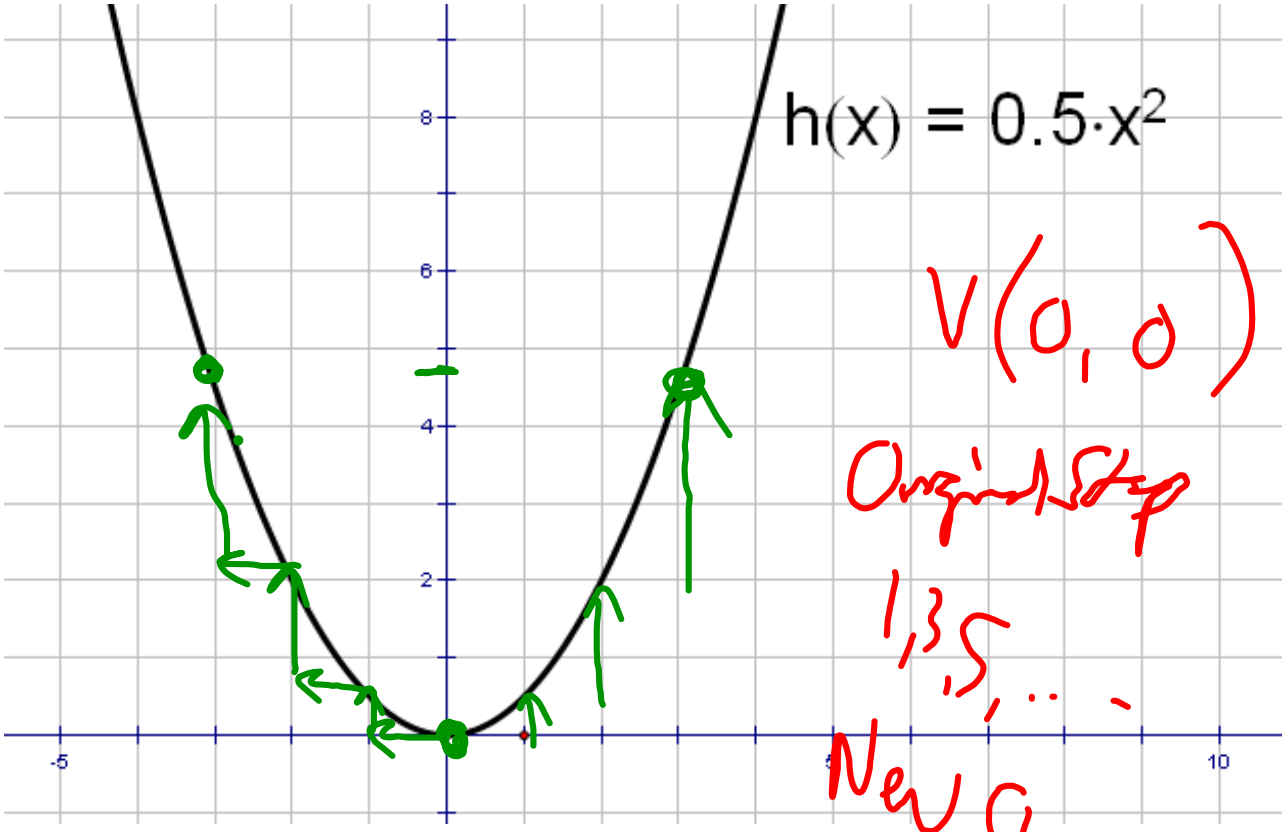
V(0,0)

a=1

Step pattern!

Δy: 1, 3, 5, ...


1, 3, 5, . . .
×3
3, 9, 15
g(x) = 3·x²
V(0, 0)
a=+3
3, 9, 15, . . .
+15
+9
+3
14
12
10
8
6
4
2
-5


h(x) = 0.5·x²
8
6
4
2
-5
10
V(0, 0)
Original Step
1, 3, 5, ...
New Step
+0.5
½, 1½, 2½, ...

Summary

- "a" determines the direction
- and the shape!

if $a = 1$

then step 1, 3, 5, ... refers to Δy when $\Delta x \pm 1$

ex.1) $a = 4$

original 1, 3, 5, ...

new 4, 12, 20, ..

ex2 $a=4$

$V(3,7)$

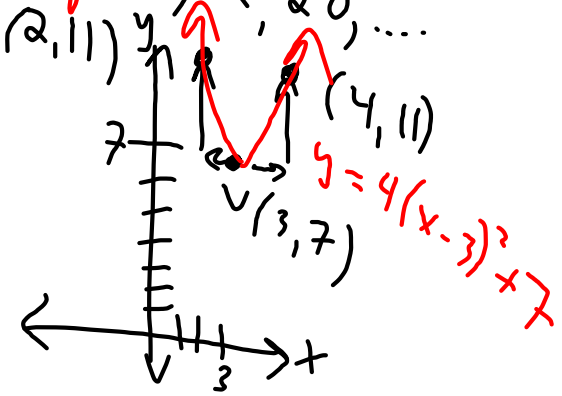
q1) eq? $y=4(x-3)^2+7$

q2) graph?

step? shape/direction?

1, 3, 5, ...

new step 4, 12, 20, ...



ex?) $y = -5(x+1)^2 + 11$

a) Vertex? $V(-1, 11)$

b) a? -5

$\therefore$ shape/direction (step)

1, 3, 5, ...

-5, -15, -25, ...

c) graph