

## 1.1 Horizontal & Vertical Translations

transformation - a change to an original function, graph, etc...

translation - horizontal or vertical "slide"

image - the resulting graph of one or more transformations

domain - x-values, independent variable, horizontal

range - y-values, dependent variable, vertical

$$\text{Ex 1)} \quad y = x^2$$

$$y - 2 = x^2$$

$$y = x^2 + 2$$

vert. translation

up 2

vertex  $(0, 2)$

$$(x, y) \rightarrow (x, y + 2)$$

$$y = (x - 5)^2$$

hor. translation

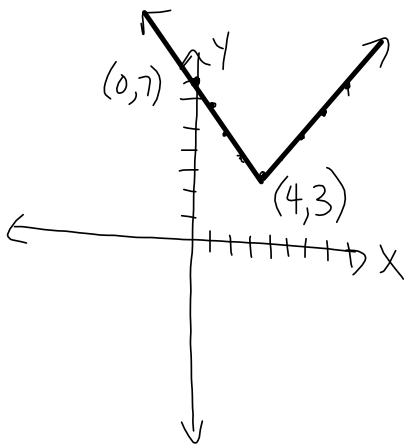
right 5

vertex  $(5, 0)$

$$(x, y) \rightarrow (x + 5, y)$$

Ex2) Graph  $y = |x-4| + 3$ . Mark 5 points.

Describe using words & mapping the translations.



$$(x, y) \rightarrow (x+4, y+3)$$

Ex 3) pg. 10 a)  $f(x) = x^2$       Left 4 (HT - 4)  
 $g(x) = (x + 4)^2 - 5$       Down 5 (VT - 5)

b)  $g(x) = f(x - 4) - 9$       Right 4 (HT + 4)  
Down 9 (VT - 9)

pg. 12-15 # 1, 3, 5-7, 9-12, 17-19, CC1-4