

**ASSIGNMENT: Transformations**

**Horizontal Translation:**  $f(x) \rightarrow f(x - h)$       Changes input value (thus horizontal change)

**Vertical Translation:**  $f(x) \rightarrow f(x) + k$       Changes output value (thus vertical change)

**Y-axis Reflection:**  $f(x) \rightarrow f(-x)$

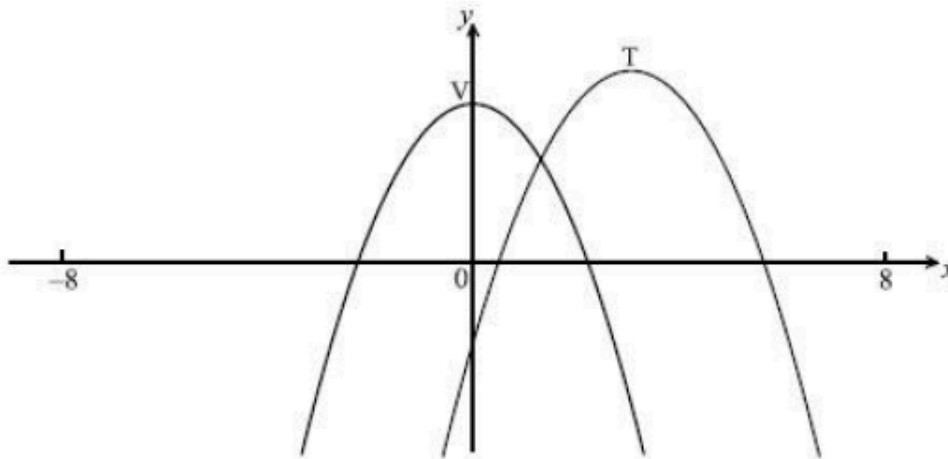
**X-axis Reflection:**  $f(x) \rightarrow -f(x)$

**Horizontal Stretch (>1) /Compression (<1):**  $f(x) \rightarrow f\left(\frac{1}{b}x\right)$

**Vertical Stretch (>1) /Compression (<1):**  $f(x) \rightarrow a \cdot f(x)$

75.) The following diagram shows part of the graph of  $f(x) = 5 - x^2$  with vertex V (0, 5).

Its image  $y = g(x)$  after a translation with vector  $\begin{pmatrix} h \\ k \end{pmatrix}$  has vertex T (3, 6).



(a) Write down the value of

(i)  $h$ ;

(ii)  $k$ .

(2)

(b) Write down an expression for  $g(x)$ .

(2)

(c) On the same diagram, sketch the graph of  $y = g(-x)$ .

(2)

(Total 6 marks)