Question 85 (*****)

$$f(x)=b-(x-a)^2,\ x\in\mathbb{R}$$

$$g(x)=a+(x-b)^2,\ x\in\mathbb{R}.$$

The graph of $f(x)$ has a maximum at P and the graph of $g(x)$ has a minimum at Q, where P and Q are distinct points.

a) Given that $f(x)$ passes through Q, show that $g(x)$ passes through P.

b) Given further that $f(x)$ touches the x axis sketch both graphs in the same diagram.

proof/graph