Determine the quadratic function f with the following properties:

- its graph has a vertex at $(3,-17)$ ← vertex
- $f(4) = 5$ ← point

Vertex form of Quadratic Functions

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

- (h,k) is the vertex

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

$f(x) = a(x-3)^2 - 17$

$5 = a(4-3)^2 - 17$

$5 = a - 17$

$+17 \quad +17$

$22 = a$

$f(x) = 22(x-3)^2 - 17$