

## 1.2 Mathematical Models

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1. Find expressions for the quadratic functions whose graphs are shown (the images for this assignment are:

<http://www.webassign.net/waplots/1/0/87e17e436a7105b360de437ef9dd6e.gif>  
and

<http://www.webassign.net/waplots/e/f/059c1ccdb452a64e9c2e5842cc3114.gif>

$f(x) = ?$

We know that quadratic functions can be describes as  $y = a(x + h)^2 + k$ , thus:  
 $y = a(x - 6)^2 + k = 0$  when  $x = 6 \therefore k = 0$ . Now, we just need to substitute  $y$   
and  $x$  with the point given  $(7, 2)$ :

$f(x) = y$

$$y = a(x - 6)^2 + 0$$

$$2 = a(7 - 6)^2$$

$$a = 2$$

(1)

$\therefore$

$$f(x) = 2(x - 6)^2$$