

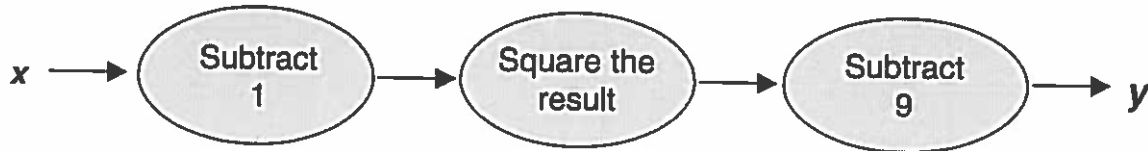
---

## Quadratic

This problem gives you the chance to:

- work with a quadratic function in various forms
- 

This is a quadratic number machine.



1. a. Show that, if  $x$  is 5,  $y$  is 7. \_\_\_\_\_

b. What is  $y$  if  $x$  is 0? \_\_\_\_\_

c. Use algebra to show that, for this machine,  $y = x^2 - 2x - 8$ . \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

The diagram on the next page shows the graph of the machine's quadratic function  $y = x^2 - 2x - 8$  and the graphs of  $y = 3$  and  $y = x$ .

2. a. Which point on the diagram shows the minimum value of  $y$ ? \_\_\_\_\_

b. Which point(s) on the diagram show(s) the solution(s) to the equation  $3 = x^2 - 2x - 8$ ?  
\_\_\_\_\_

c. Which point(s) on the diagram show(s) the solution(s) to the equation  $x = x^2 - 2x - 8$ ?  
\_\_\_\_\_

3. a. Use the graph to solve the equation  $x^2 - 2x - 8 = 0$ . Mark the solutions on the graph.

$x =$  \_\_\_\_\_ or  $x =$  \_\_\_\_\_

b. Use algebra to solve the same equation.

---

---

---

---

