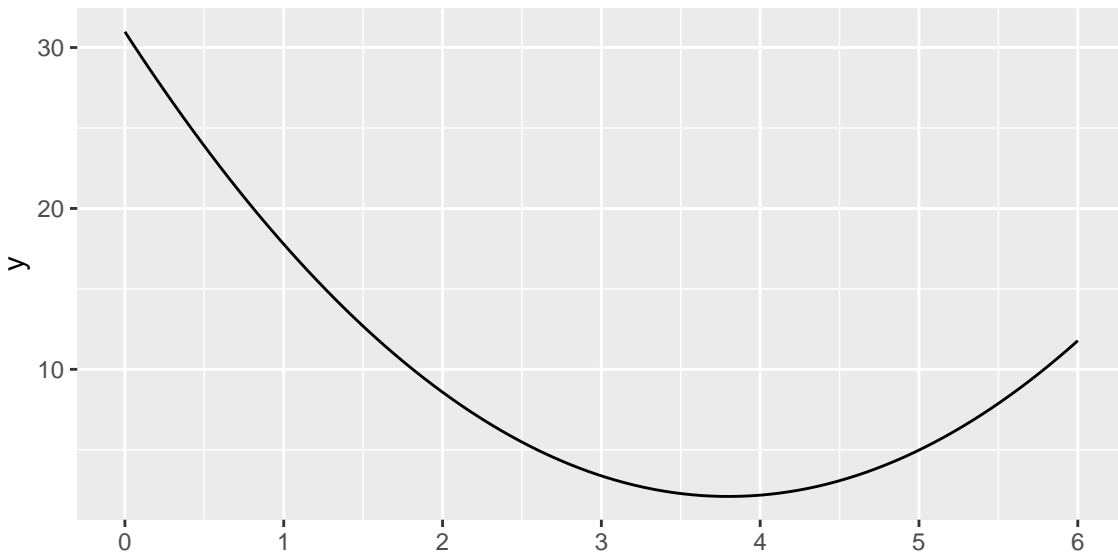


## Question

A graph of the function  $f(x) = 2(x - 3.8)^2 + (2.1)$  is given below.



Select each of the true statements from the following:

### Answerlist

- The function is increasing on  $(2.1, \infty)$
- The function is increasing on  $(3.8, \infty)$
- The function is decreasing on  $(3.8, \infty)$
- The function is increasing on  $(-\infty, 3.8)$
- The function is decreasing on  $(-\infty, 3.8)$

## Solution

### Answerlist

- False. Behavior of functions is described on intervals of the input variable,  $x$
- True.  $f$  is increasing since its derivative is  $\frac{df}{dx} = 2 \cdot 2(x - 3.8)$  which is positive on  $(3.8, \infty)$  since  $a = 2 > 0$
- False.  $f$  is increasing since its derivative is  $\frac{df}{dx} = 2 \cdot 2(x - 3.8)$  which is positive on  $(3.8, \infty)$  since  $a = 2 > 0$
- False.  $f$  is decreasing since its derivative is  $\frac{df}{dx} = 2 \cdot 2(x - 3.8)$  which is negative on  $(-\infty, 3.8)$  since  $a = 2 > 0$
- True.  $f$  is decreasing since its derivative is  $\frac{df}{dx} = 2 \cdot 2(x - 3.8)$  which is negative on  $(-\infty, 3.8)$  since  $a = 2 > 0$

## Meta-information

extype: mchoice exsolution: 01001 exname: IncreasingDecreasing