

Higher Maths
SQA 2017 Paper 1
Question 15



A quadratic function, f , is defined on \mathbb{R} , the set of real numbers.

Diagram 1 shows part of the graph with equation $y = f(x)$.

The turning point is $(2, 3)$.

Diagram 2 shows part of the graph with equation $y = h(x)$.

The turning point is $(7, 6)$.

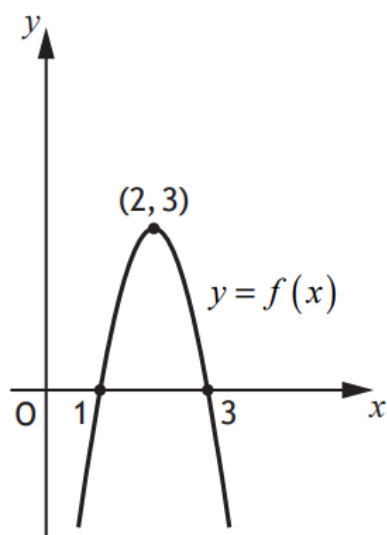


Diagram 1

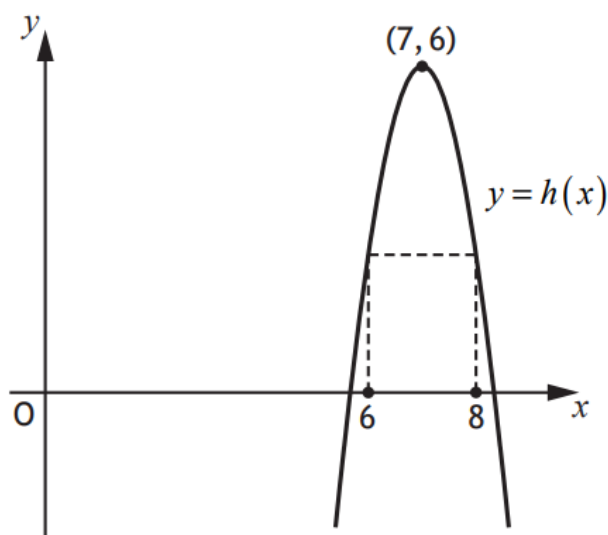


Diagram 2

(a) Given that $h(x) = f(x+a) + b$.

Write down the values of a and b .

2

(b) It is known that $\int_1^3 f(x) dx = 4$.

Determine the value of $\int_6^8 h(x) dx$.

1

(c) Given $f'(1) = 6$, state the value of $h'(8)$.

1

Answers: (a) $a = -5, b = 3$

(b) 10

(c) -6