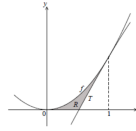


## IB Calculus Problem 7

The following figure shows part of the graph of the function  $f(x) = 2x^2$ .

The figure is not to scale.



The line  $T$  is the tangent to the graph of  $f$  at  $x = 1$ .

- A. Show that the equation of  $T$  is  $y = 4x - 2$ .
- B. Find the x-intercept of  $T$ .
- C. The shaded region  $R$  is bounded by the graph of  $f$ , the line  $T$  and the x-axis.
  - i. Write down an expression for the area of  $R$ .
  - ii Find the area of  $R$ .