



The diagram shows the curve  $y = f(x)$  defined for  $x > 0$ . The curve has a minimum point at  $A$  and crosses the  $x$ -axis at  $B$  and  $C$ . It is given that  $\frac{dy}{dx} = 2x - \frac{2}{x^3}$  and that the curve passes through the point  $(4, \frac{189}{16})$ .

- (i) Find the  $x$ -coordinate of  $A$ .

[2]

.....

.....

.....

.....

.....

- (ii)** Find  $f(x)$ .

[3]

[illegible]

.....

.....

.....

.....

.....

.....

.....

(iii) Find the  $x$ -coordinates of  $B$  and  $C$ . [4]

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

[Question 10 (iv) is printed on the next page.]

(iv) Find, showing all necessary working, the area of the shaded region. [4]

[4]