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3.

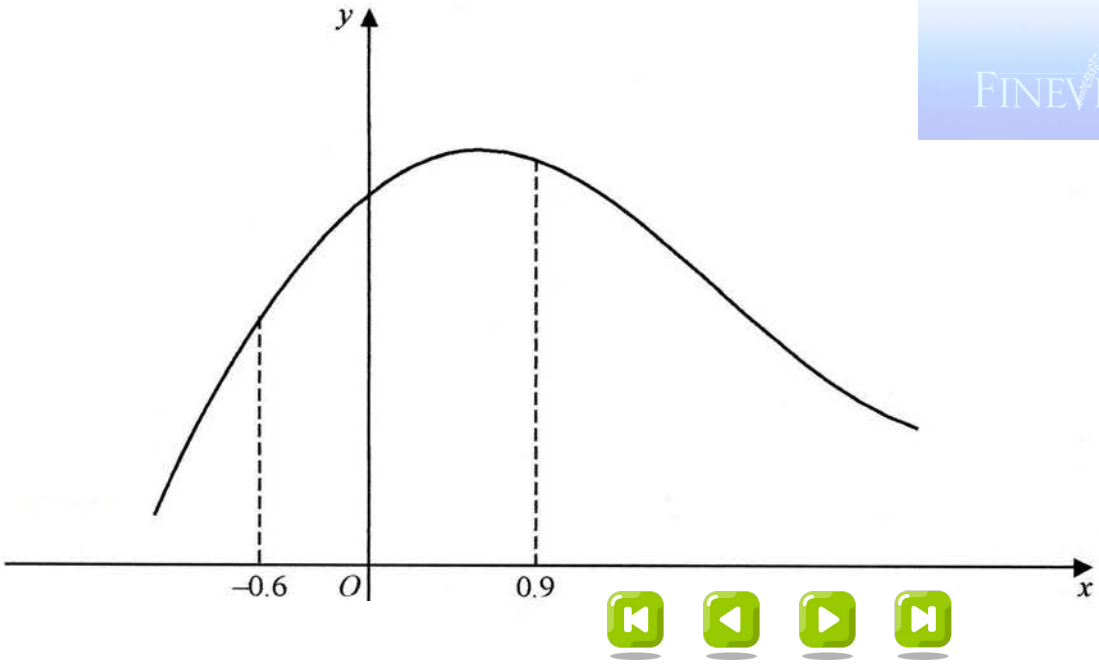

Figure 1

Figure 1 shows a sketch of part of the curve with equation $y = f(x)$.

The table shows corresponding values of x and y for this curve between $x = -0.6$ and $x = 0.9$

x	–0.6	–0.3	0	0.3	0.6	0.9
y	1.811	2.342	2.718	2.941	3.011	2.944

(a) Use the trapezium rule, with all the values of y in the table, to find an estimate for

$$\int_{-0.6}^{0.9} f(x)\,dx$$

Give your answer to 3 significant figures.

(3)

(b) State whether the answer to part (a) is an underestimate or overestimate of

$$\int_{-0.6}^{0.9} f(x)\,dx$$

justifying your answer.

(1)

(c) Using the answer to part (a), find an estimate for

$$\int_{-0.6}^{0.9} (8 - 2f(x))\,dx$$

(3)