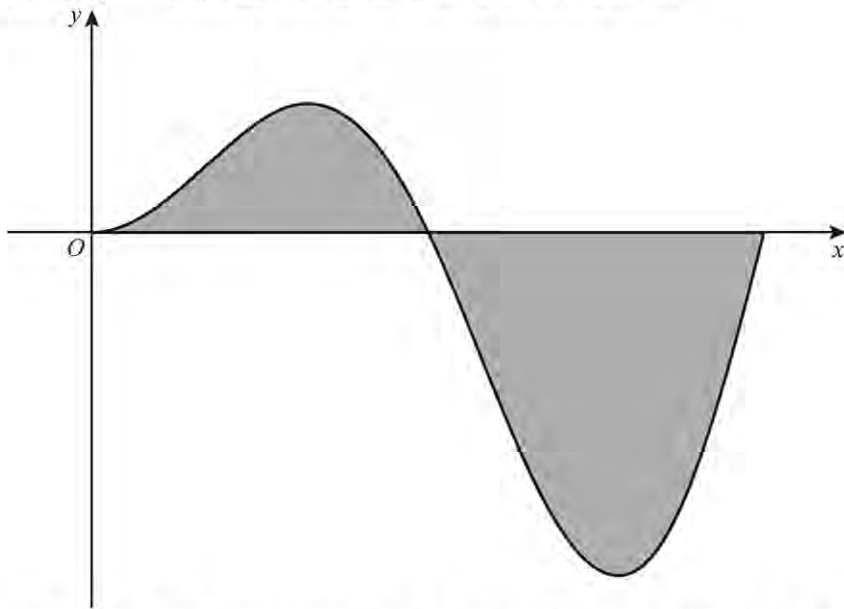


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The graph of $y = 4x \sin 2x$ for $0 \leq x \leq \pi$ is shown below.



Show that the shaded area enclosed by the x -axis and the curve is $k\pi$, where k is an integer to be found.

Fully justify your answer.

[8 marks]