

Given that $f(x) = (4 - 3x^2)^{-\frac{1}{2}}$ on a suitable domain, find $f'(x)$.

A $-3x(4 - 3x^2)^{-\frac{1}{2}}$

B $-\frac{1}{2}(4 - 6x)^{-\frac{3}{2}}$

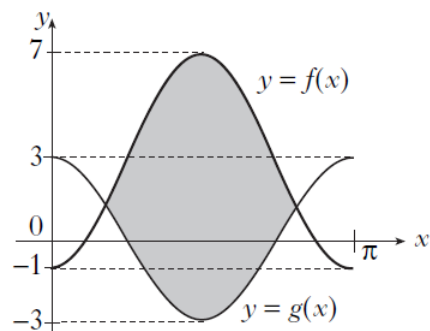
C $2(4 - 3x^3)^{\frac{1}{2}}$

D $3x(4 - 3x^2)^{-\frac{3}{2}}$

The graphs of $y = f(x)$ and $y = g(x)$ are shown in the diagram.

$f(x) = -4\cos(2x) + 3$ and $g(x)$ is of the form $g(x) = m\cos(nx)$.

- (a) Write down the values of m and n .
- (b) Find, correct to one decimal place, the coordinates of the points of intersection of the two graphs in the interval $0 \leq x \leq \pi$.
- (c) Calculate the shaded area.



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Find $\int 4\sin(2x + 3) dx$.

A $-4\cos(2x + 3) + c$

B $-2\cos(2x + 3) + c$

C $4\cos(2x + 3) + c$

D $8\cos(2x + 3) + c$

What is the derivative of $(x^3 + 4)^2$?

A $(3x^2 + 4)^2$

B $\frac{1}{3} (x^3 + 4)^3$

C $6x^2(x^3 + 4)$

D $2(3x^2 + 4)^{-1}$

Given that $y = \sqrt{3x^2 + 2}$, find $\frac{dy}{dx}$. 3

Find the value of $\int_0^2 \sin(4x + 1) dx$. 4