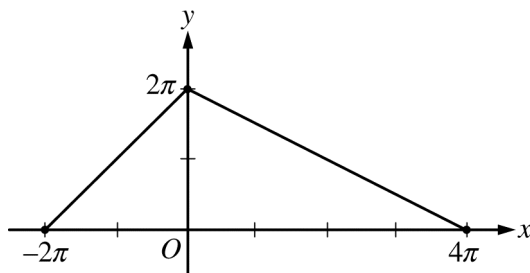


2011 AP[®] CALCULUS AB FREE-RESPONSE QUESTIONS (Form B)



Graph of g

6. Let g be the piecewise-linear function defined on $[-2\pi, 4\pi]$ whose graph is given above, and

let $f(x) = g(x) - \cos\left(\frac{x}{2}\right)$.

(a) Find $\int_{-2\pi}^{4\pi} f(x) \, dx$. Show the computations that lead to your answer.

(b) Find all x -values in the open interval $(-2\pi, 4\pi)$ for which f has a critical point.

(c) Let $h(x) = \int_0^{3x} g(t) \, dt$. Find $h'\left(-\frac{\pi}{3}\right)$.

WRITE ALL WORK IN THE EXAM BOOKLET.

END OF EXAM