

Calculus no calculator w-up 10 mins

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Let $f(x) = \frac{1}{k} \cos(kx)$ For what value of k does f have a period of 3?

- A) $\frac{2}{3}$ B) $\frac{2\pi}{3}$ C) $\frac{3\pi}{2}$ D) 6 E) 6π

9. $\int (x-1)\sqrt{x} dx =$

- A) $\frac{3}{2}\sqrt{x} - \frac{1}{\sqrt{x}} + C$ B) $\frac{2}{3}x^{\frac{3}{2}} + \frac{1}{2}x^{\frac{1}{2}} + C$ C) $\frac{1}{2}x^2 - x + C$ D) $\frac{2}{5}x^{\frac{5}{2}} - \frac{2}{3}x^{\frac{3}{2}} + C$ E) $\frac{1}{2}x^2 + 2x^{\frac{3}{2}} - x + C$

10. What is the $\lim_{x \rightarrow \infty} \frac{x^2 - 4}{2 + x - 4x^2}$

- A) -2 B) $-\frac{1}{4}$ C) $\frac{1}{2}$ D) 1 E) DNE

11. The area of the region in the first quadrant between the graph of $y = x\sqrt{4-x^2}$ and the x-axis is:

- A) $\frac{2}{3}\sqrt{2}$ B) $\frac{8}{3}$ C) $2\sqrt{2}$ D) $2\sqrt{3}$ E) $\frac{16}{3}$

12. For which of the following functions does the property $\frac{d^3y}{dx^3} = \frac{dy}{dx}$ hold true?

- I $y = e^x$ II $y = e^{-x}$ III $y = \sin x$

- A) I only B) II only C) III only D) I and II E) II and III

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