

Calculus

W 16 October 2013

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Response tables

Σ points = 100

Pts agree

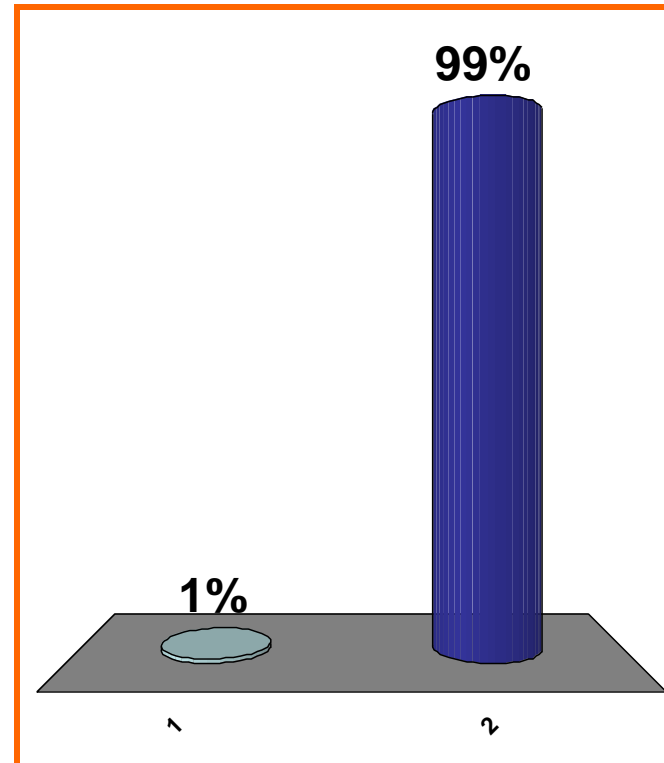
Answers agree

QUIZ
FOLLOWS

$$1 + 1 = ??$$

(a) 1

(b) 2



arithmetic

0 pts

5

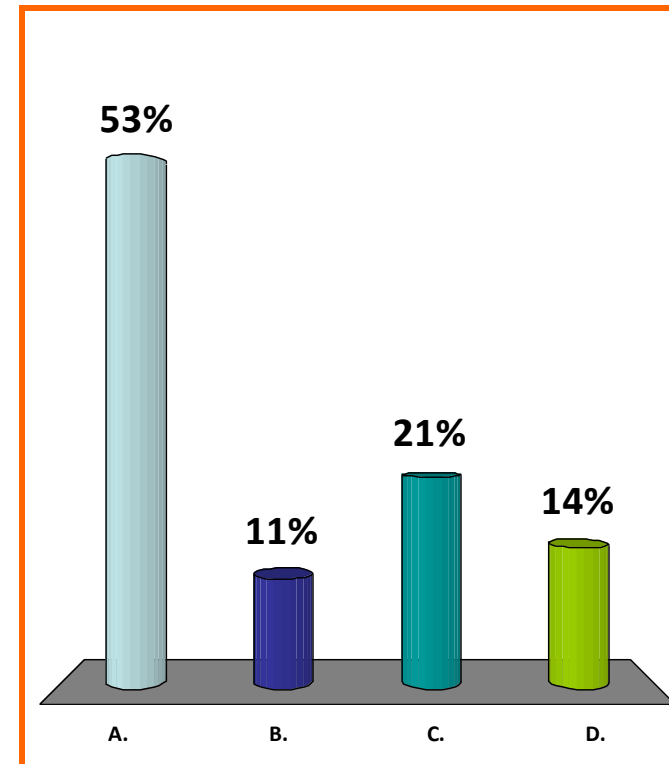
$$\frac{d}{dx} [x \sin x + 4 \cos x] = ??$$

$$(a) \sin x + x \cos x - 4 \sin x$$

$$(b) (1)(\cos x) + (0)(-\sin x)$$

$$(c) x \cos x - 4 \sin x$$

(d) none of the above



Principle of log diff:

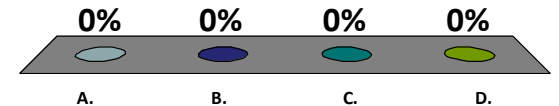
$$f'(x) = ??$$

(a) $[f(x)][(d/dx)(\ln |f(x)|)]$

(b) $[f'(x)]/[f(x)]$

(c) $(d/dx)(\ln |f(x)|)$

(d) none of the above



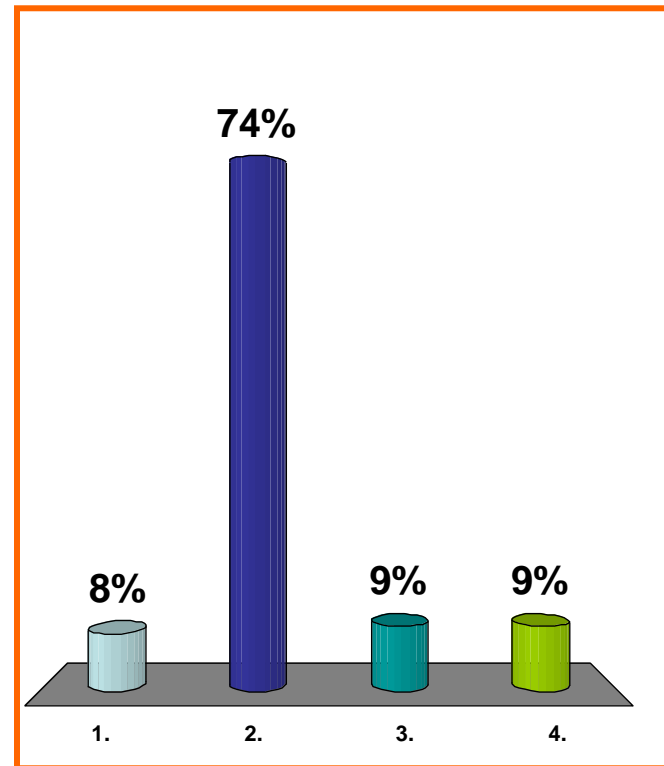
$$\lim_{x \rightarrow 0} \frac{e^x - 1 - x}{x^2} = ??$$

(a) ∞

(b) $\lim_{x \rightarrow 0} \frac{e^x - 1}{2x}$

(c) DNE

(d) none of the above



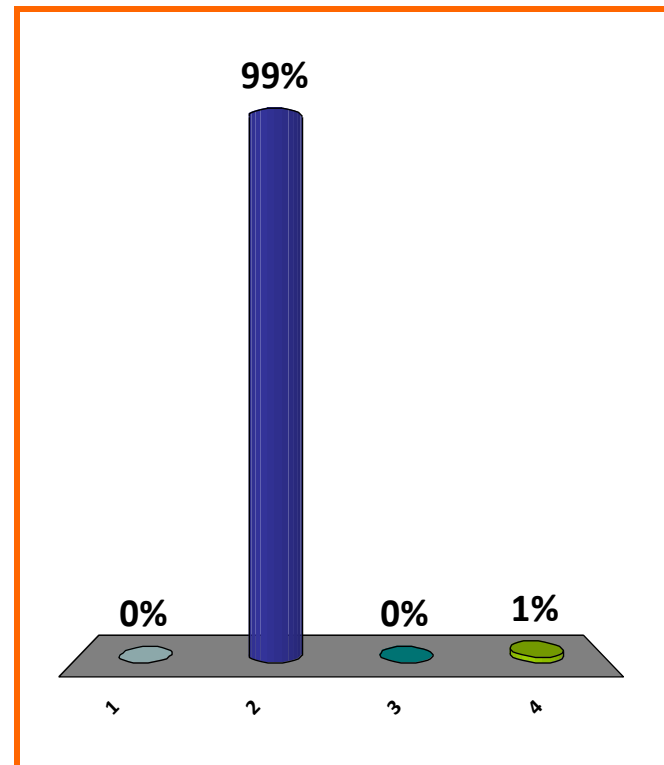
$$\lim_{x \rightarrow 0} \left[\frac{6x^8 + 7x^4 - 8x^3}{7x^5 - 2x^4 + 9x^3} \right] = ??$$

(a) DNE

(b) $-8/9$

(c) $6/7$

(d) none of the above



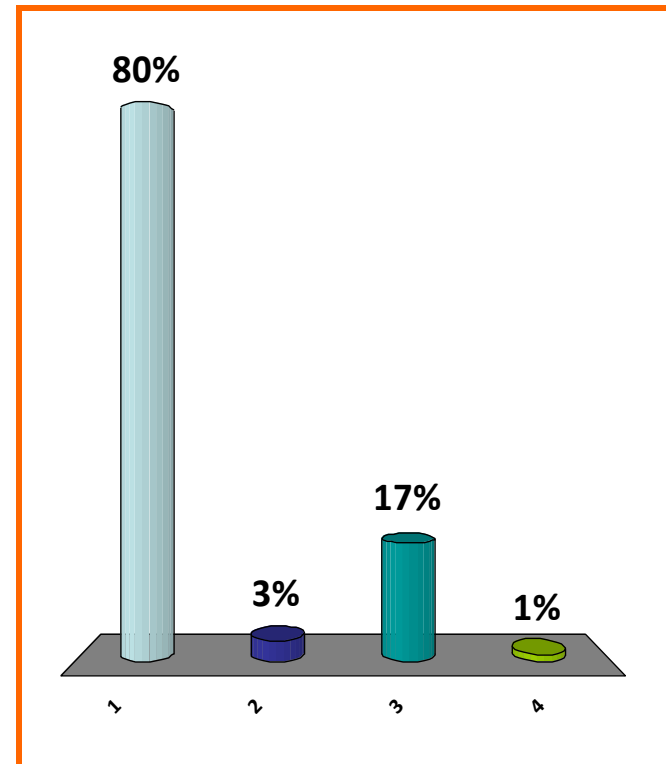
$$\lim_{x \rightarrow 0^+} (\sin x + \cos x)^{1/x} = \exp \left(\lim_{x \rightarrow 0^+} ?? \right)$$

(a) $(1/x) [\ln(\sin x + \cos x)]$

(b) $(\ln(\sin x) + \ln(\cos x))^{1/x}$

(c) $(1/x)(\ln(\sin x) + \ln(\cos x))$

(d) none of the above



$$\ln(1 + (3/n)) \underset{n \rightarrow \infty}{\sim} 3/n$$

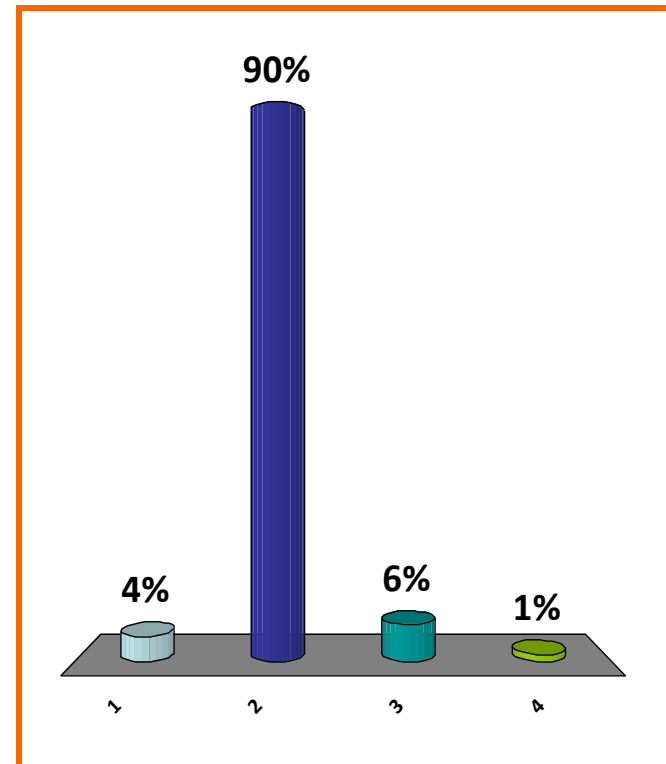
$$\lim_{n \rightarrow \infty} n[\ln(1 + (3/n))] = ??$$

(a) 0

(b) 3

(c) ∞

(d) none of the above



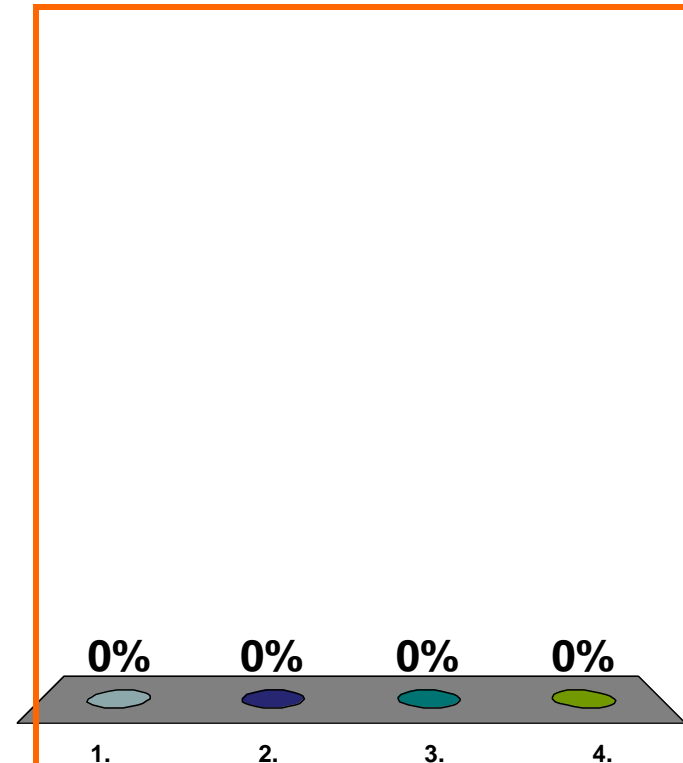
$$[d/dx][\tan(xy)] = ??$$

(a) $-\sec^2(xy)[y + xy']$

(b) $-\sec^2(xy)[y + x]$

(c) $\sec^2(xy)[y + xy']$

(d) none of the above



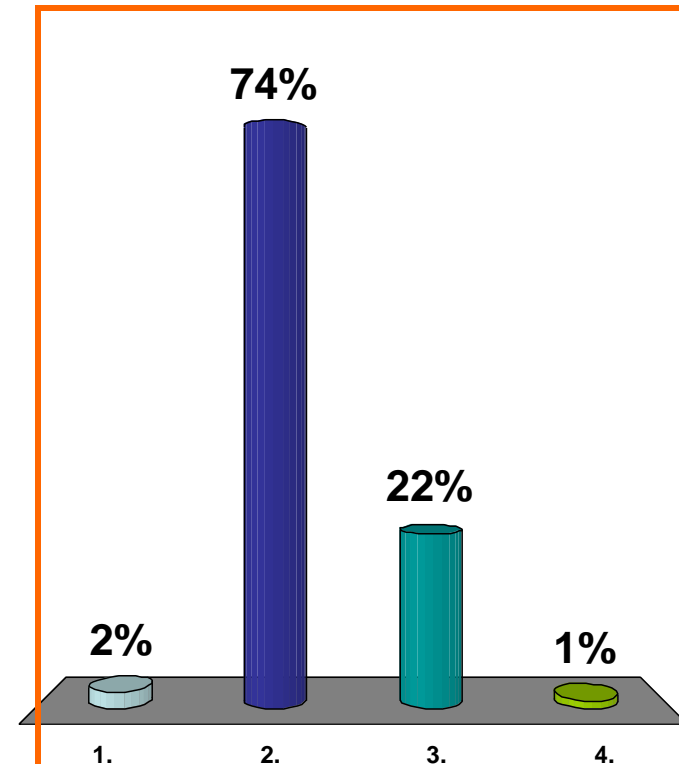
$$[d/dx][xe^y + y] = ??$$

(a) $e^y + xe^y + 1$

(b) $e^y + xe^y y' + y'$

(c) $e^y + xe^y + y'$

(d) none of the above



$$\begin{aligned} [d/dx][xe^y + y] &= e^y + xe^y y' + y' \\ &= e^y + (xe^y + 1)y' \end{aligned}$$

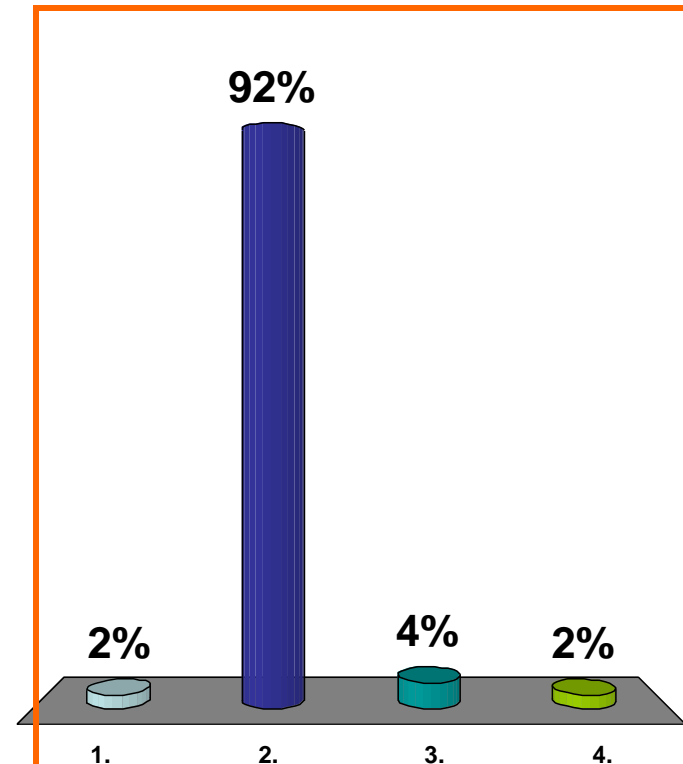
$$\begin{aligned} xe^y + y &= 1 \\ y' &= ?? \end{aligned}$$

(a) $e^y / (xe^y + 1)$

(b) $-e^y / (xe^y + 1)$

(c) $(1 - e^y) / (xe^y + 1)$

(d) none of the above



$$y' = -e^y / (xe^y + 1)$$

$$xe^y + y = 1$$

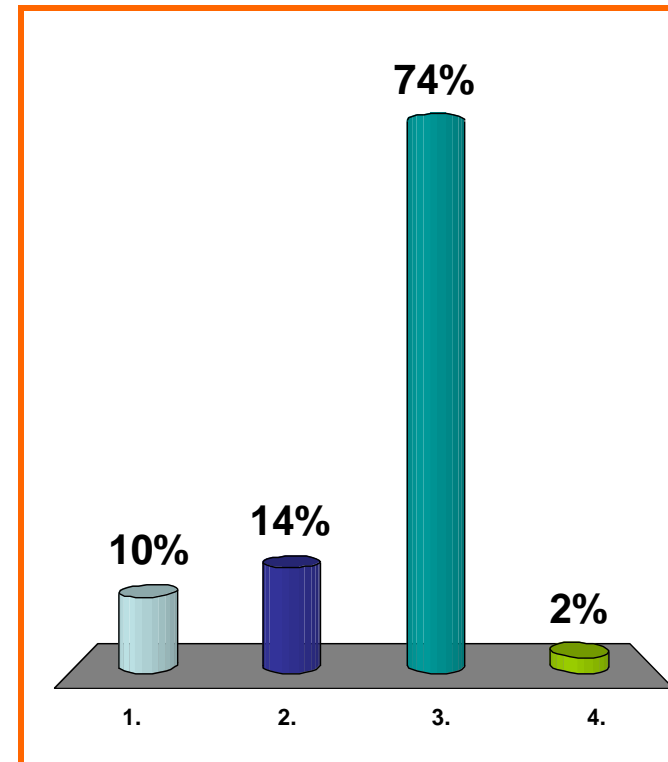
slope at $(0, 1)$?

(a) 0

(b) -1

(c) $-e$

(d) none of the above



END
QUIZ