Calculus
M 25 March 2013

RESET THE SESSION

SET THE PARTICIPANT LIST

PLUG IN THE RECEIVER

Boxed answers agree with TurningPoint answers

Points agree with TurningPoint points

Points total to 100

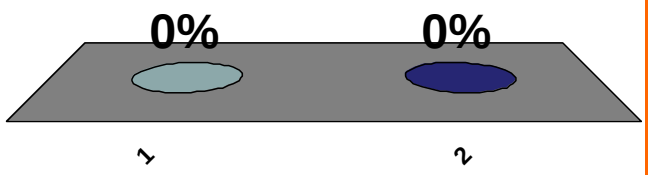
Topics covered are in bounds

QUIZ
FOLLOWS

$1 + 1 = ??$

(a) 1

(b) 2



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21	22	23	24	25	26	27	28	29	30										

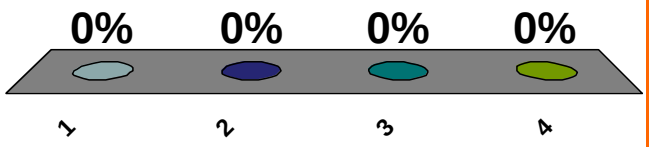
$$[d/dx][xe^y + y] = \text{??}$$

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

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

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

(d) none of the above



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$$[d/dx][xe^y + y] = e^y + xe^y y' + y'$$
$$= e^y + (xe^y + 1)y'$$

$$xe^y + y = 1$$

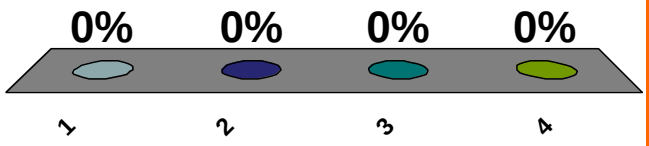
$$y' = ??$$

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

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

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

(d) none of the above



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

$xe^y + y = 1$

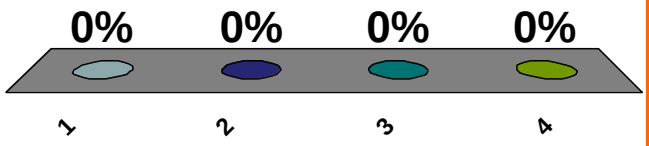
slope at $(0, 1)$?

(a) $-e$

(b) 0

(c) -1

(d) none of the above



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$$f(8) = 7, \quad f'(8) = -4$$

$$g = f^{-1}$$

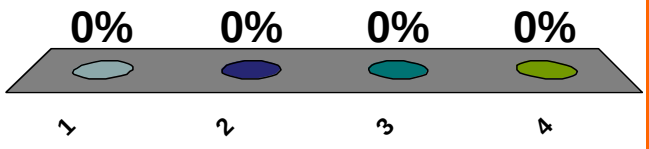
$$g(7) = ??, \quad g'(7) = ??$$

(a) 8, $-1/4$

(b) 8, $1/7$

(c) not enough information

(d) none of the above



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$$g = f^{-1}$$

$$f(6) = 9,\ f'(6) = 1/4$$

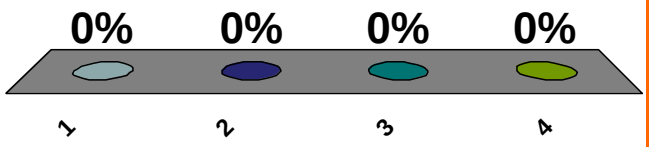
$$g'(6) = ??$$

(a) 1/2

(b) 4

(c) not enough information

(d) none of the above



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END
QUIZ

END
CLASS

$$[d/dx][(\cos y) + 2y^3] = ??$$

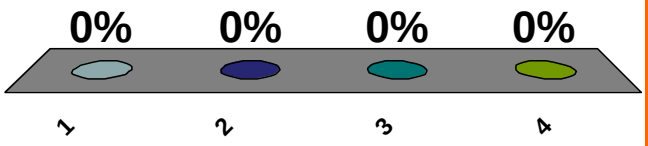
(a) $-(\sin y) + 6y^2$

(b) $-(\sin y') + 6(y')^2$

(c) $-(\sin y)y' + 6y^2$

(d) none of the above

Correct answer: $-(\sin y)y' + 6y^2y'$



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0 of 5

Topic 0430

0 pts

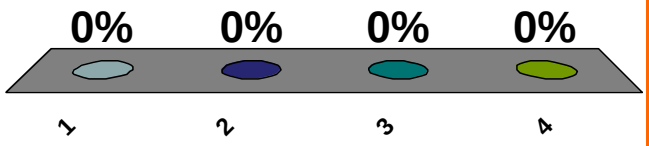
$$[d/dx][\tan(xy)] = ??$$

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

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

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

(d) none of the above



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$$(d/dx)(\arctan x) = \frac{1}{1+x^2}$$

$$(d/dx)(\arctan e^x) = \text{??}$$

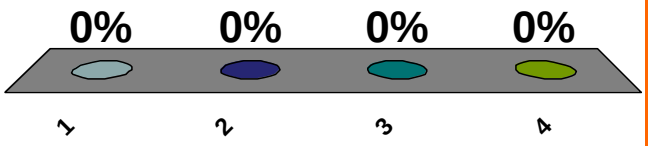
(a) $\dfrac{1}{1+(e^x)^2}$

(b) $(\operatorname{arcsec}^2 e^x)(e^x)$

(c) $\dfrac{1}{1-(e^x)^2}$

(d) none of the above

Correct answer: $\dfrac{e^x}{1+(e^x)^2}$



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21	22	23	24	25	26	27	28	29	30										

$$f(g(x)) = x$$
$$[f'(g(x))][g'(x)] = 1$$
$$[f'(g(7))][g'(7)] = 1$$

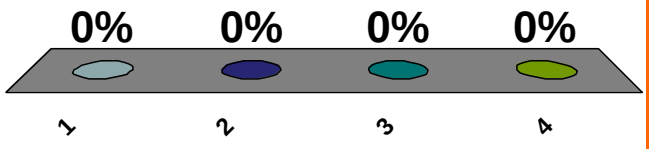
$$g = f^{-1}$$
$$f(4) = 7,\ g(7) = 4$$
$$f'(4) = 2,\ g'(7) = ??$$

(a) 1/2

(b) 4

(c) 0

(d) none of the above



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$$f(g(x)) = x$$
$$[f'(g(x))][g'(x)] = 1$$
$$[f'(g(7))][g'(7)] = 1$$

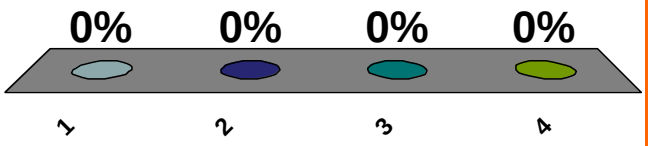
$$g = f^{-1}$$
$$f(4) = 7,\ g(7) = 4$$
$$f'(4) = 2,\ g'(7) = ??$$

(a) 1/2

(b) 4

(c) not enough information

(d) none of the above



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$$g = f^{-1}$$

$$f(6) = 9,\ f'(6) = 1/4$$

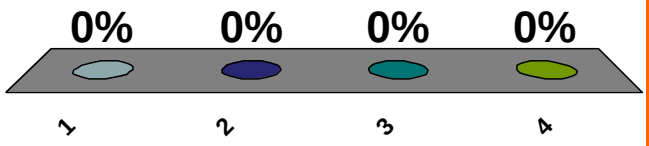
$$g'(9) = ??$$

(a) 1/2

(b) 4

(c) not enough information

(d) none of the above



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$$f(4) = -6, \quad f'(4) = 8$$

$$g = f^{-1}$$

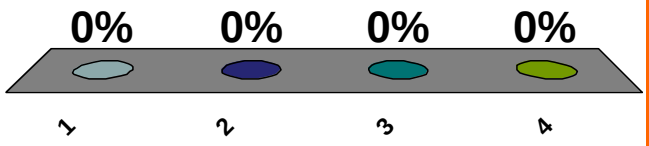
$$g(-6) = ??, \quad g'(-6) = ??$$

(a) 4, 1/8

(b) 1/4, 1/8

(c) not enough information

(d) none of the above



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$\ln(1 + [f(x)]) \underset{x \to a}{\sim}$??

provided $f(x) \underset{x \to a}{\to} 0$

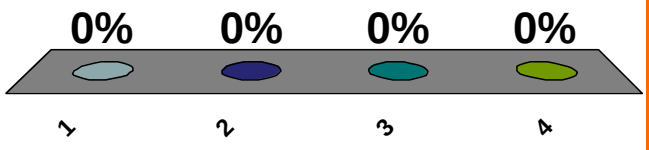
(a) 0

(b) $\ln[f(x)]$

(c) $1 + [f(x)]$

(d) none of the above

Correct answer: $f(x)$



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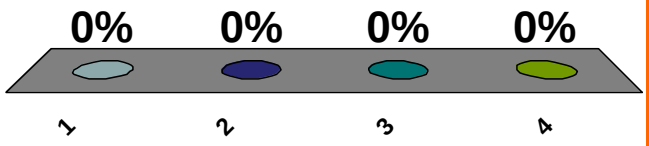
$$\lim_{x \to 0^+} (\sin x + \cos x)^{1/x} = \exp\left(\lim_{x \to 0^+} \; ?? \right)$$

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

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

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

(d) none of the above



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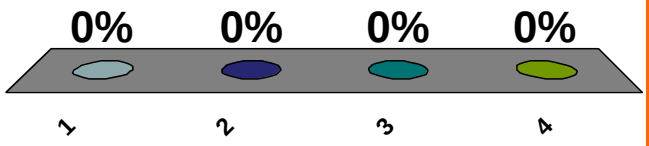
(a) $x(1+x^2)^{x-1}\left[\frac{d}{dx}(1+x^2)\right]$

$\frac{d}{dx}\left[(1+x^2)^x\right]$

(b) $x(2x)^{x-1}$

(c) $\left[(1+x^2)^x\right]\left[\frac{d}{dx}\left(x\cdot\ln\left(1+x^2\right)\right)\right]$

(d) none of the above



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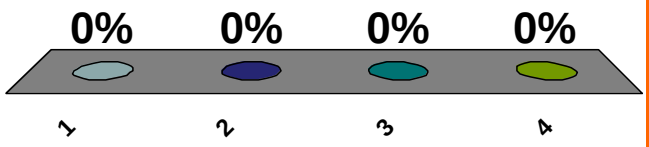
logarithmic derivative w.r.t. x of $-x^4 + 5x^2 + 2$

(a) $-4x^3 + 10x$

(b) $\dfrac{-4x^3 + 10x}{-x^4 + 5x^2 + 2}$

(c) $\dfrac{-x^4 + 5x^2 + 2}{-4x^3 + 10x}$

(d) none of the above



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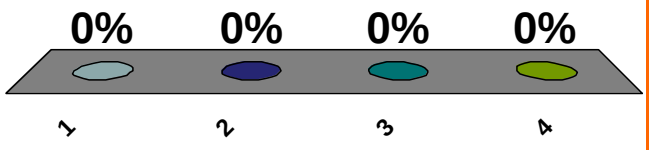
$$\lim_{x\to 0}\frac{e^x-x-1}{x^4} \underset{\text{l'H}}{=} \lim_{x\to 0}\frac{e^x-1}{4x^3} = ??$$

(a) $\lim_{x\to 0}\frac{e^x}{12x^2}$

(b) ∞

(c) DNE

(d) none of the above



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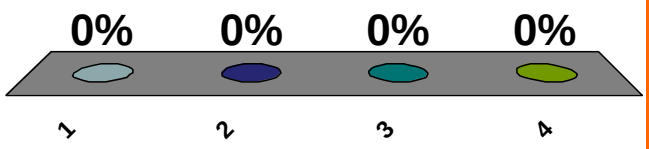
$$\lim_{x\to 0}\frac{e^x-x-1}{x^4}=\lim_{x\to 0}\frac{e^x-1}{4x^3}=\lim_{x\to 0}\frac{e^x}{12x^2}=??$$

(a) $\lim_{x\to 0}\frac{e^x}{24x}$

(b) ∞

(c) DNE

(d) none of the above



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$$(d/dx)(\arctan x) = \frac{1}{1+x^2}$$

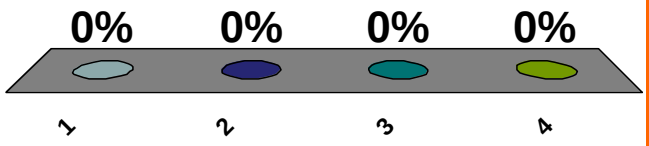
$$(d/dx)(\arctan e^x) = \text{??}$$

(a) $\dfrac{1}{1+(e^x)^2}$

(b) $(\operatorname{arcsec}^2 e^x)(e^x)$

(c) $\dfrac{e^x}{1+(e^x)^2}$

(d) none of the above



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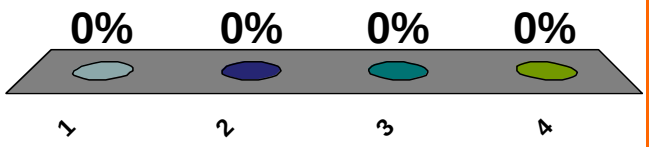
$$\frac{d}{dx}\left[7^{1/2}\right] = ??$$

(a) 0

(b) $[1/2]\left[7^{-1/2}\right]$

(c) $7^{1/2}(\ln 7)$

(d) none of the above



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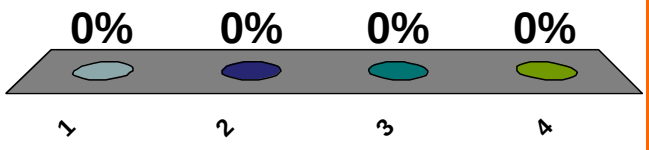
$$3x^3 + 2x \underset{x \to 0}{\sim} \; ??$$

(a) $3x^3$

(b) 0

(c) $2x$

(d) none of the above



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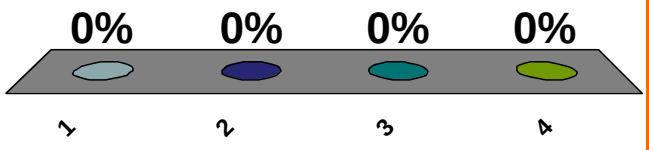
$$4x^5 - 3x^3 + 8x^2 \underset{x \to 0}{\sim} ??$$

(a) $4x^5$

(b) $8x^2$

(c) 8

(d) none of the above



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$$6x^5 + 7x^4 - 8x^3 \underset{x \to 0}{\sim} \; ??$$

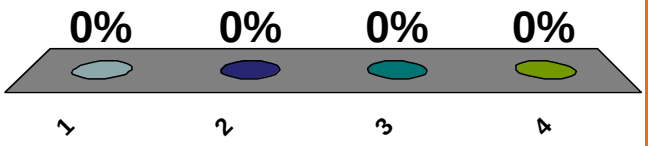
(a) $6x^5$

(b) $7x^4$

(c) $8x^3$

(d) none of the above

Correct answer: $-8x^3$



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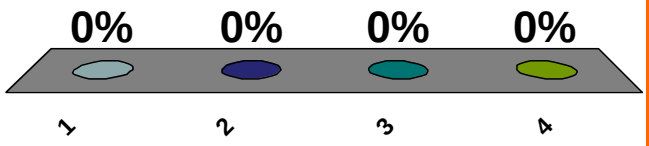
$$\lim_{x \to 0} \left[\frac{6x^5 + 7x^4 - 8x^3}{7x^5 - 2x^4 + 9x^3} \right] = ??$$

(a) DNE

(b) $-8/9$

(c) $6/7$

(d) none of the above



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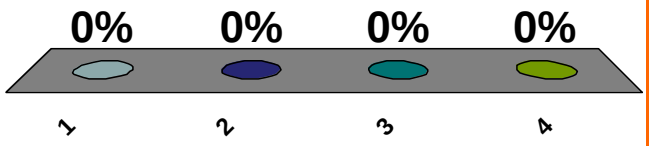
$$\lim_{x \to 0} \left[\frac{6x^8 + 7x^4 - 8x^3}{7x^5 - 2x^4 + 9x^3} \right] = ??$$

(a) DNE

(b) $-8/9$

(c) $6/7$

(d) none of the above



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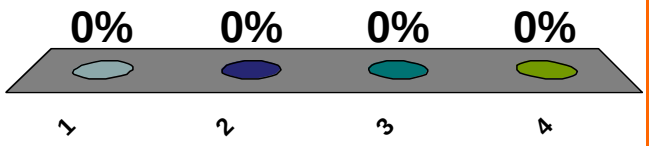
$$\lim_{x \to 0} \left[\frac{4x^6 - 7x^4 + 4x}{-2x^3 + 7x^2 - 4x} \right] = ??$$

(a) -2

(b) 1

(c) -1

(d) none of the above



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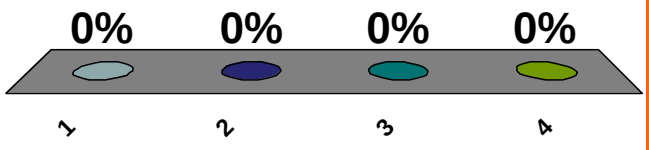
$$\sin x \underset{x \to 0}{\sim} \; ??$$

(a) x

(b) $\cos x$

(c) $-\cos x$

(d) none of the above



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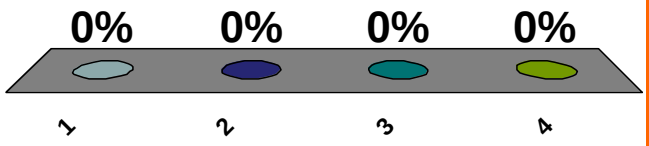
$$\lim_{x \to 2} \left((\sin x) + \sqrt{x+1} \right)$$

(a) DNE

(b) $-\infty$

(c) $(\sin 2) + \sqrt{3}$

(d) none of the above



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30										

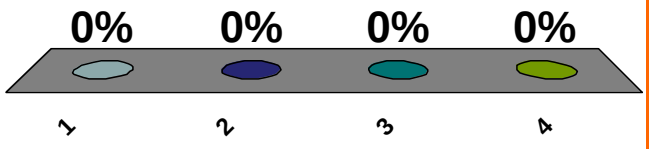
$$4x^5 - 3x^3 + 8x^2 \underset{x \to \infty}{\sim} \; ??$$

(a) $4x^5$

(b) $8x^2$

(c) 8

(d) none of the above



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30										

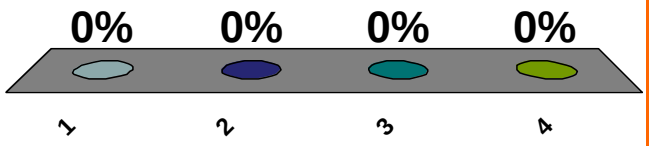
$$\lim_{x\to\infty} xe^{-x} = \lim_{x\to\infty} ?? \overset{\text{l'H}}{=} \cdots$$

(a) $\dfrac{e^x}{x}$

(b) $\dfrac{x}{e^x}$

(c) e^x

(d) none of the above



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30										

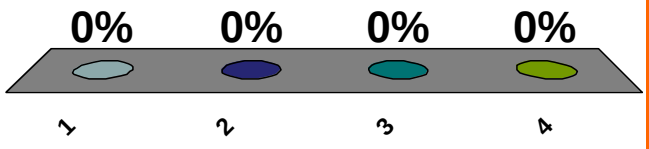
$$\ln(1 + (3/n)) \underset{n \to \infty}{\sim} \; ??$$

(a) $1/n^2$

(b) 1

(c) $3/n$

(d) none of the above



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30										

0 of 5

Topic 0420

0 pts

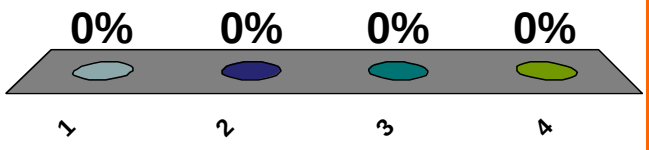
$$\lim_{x\to 0}\frac{e^x-1-x}{x^2}\underset{\text{l'H}}{=}\lim_{x\to 0}\frac{e^x-1}{2x}\underset{\text{l'H}}{=}\lim_{x\to 0}\frac{e^x}{2}=\text{??}$$

(a) ∞

(b) $\frac{1}{2}$

(c) DNE

(d) none of the above



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30										

0 of 5

Topic 0410

0 pts

SAVE THE SESSION DATA

RETURN TO PRESENTATION