Calculus
M 5 March 2012

RESET THE SESSION

SET THE PARTICIPANT LIST

PLUG IN THE RECEIVER

Look at an unused file

Cover the look ahead

Topics covered are in bounds

Boxed answers agree with TurningPoint answers

Points agree with TurningPoint points

Points total to 100

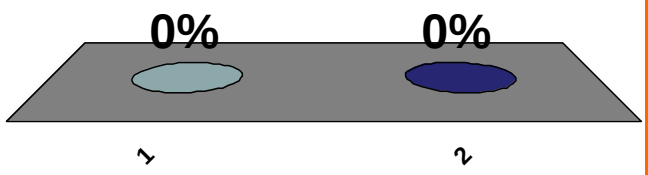
QUIZ
FOLLOWS

T or F:

Any local max is a global max.

(a) True

(b) False



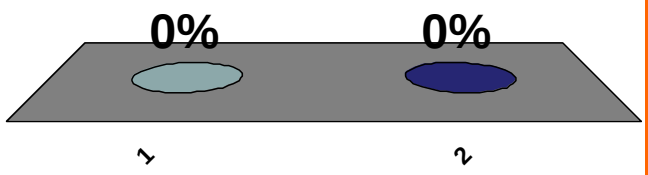
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

T or F:

Any global max is a local max.

(a) True

(b) False



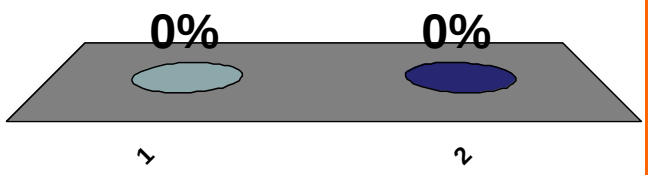
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

T or F:

At any critical number is a local max or a local min.

(a) True

(b) False



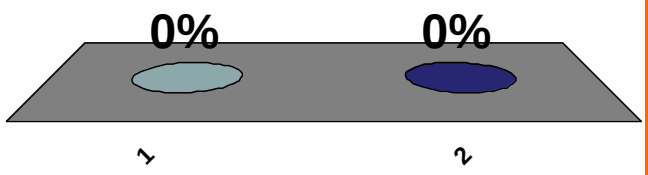
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

T or F:

Any local max or local min is at a critical number.

(a) True

(b) False



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	31	32	33	34	35	36	37	38	39	40

0 of 5

Topic 0450

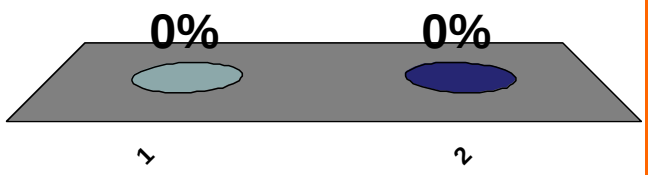
10 pts

T or F:

Any global max or global min is at a critical number.

(a) True

(b) False



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	31	32	33	34	35	36	37	38	39	40

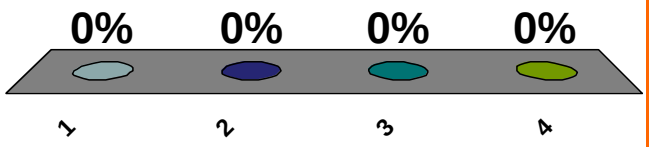
$$[d/dx][xe^y + y] = \text{??}$$

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

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

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

(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	31	32	33	34	35	36	37	38	39	40

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

$$xe^y + y = 1$$

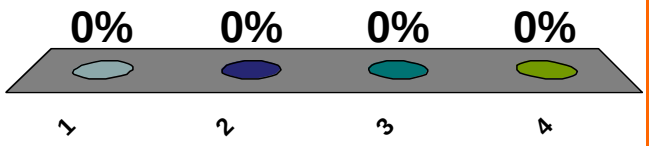
$$y' = ??$$

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

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

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

(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	31	32	33	34	35	36	37	38	39	40

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

$xe^y + y = 1$

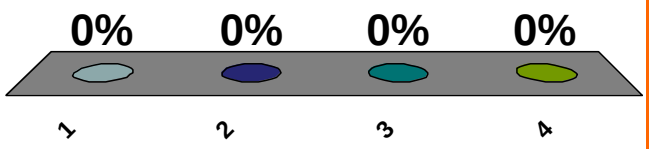
slope at $(0, 1)$?

(a) 0

(b) -1

(c) $-e$

(d) none of the above



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	31	32	33	34	35	36	37	38	39	40

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

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

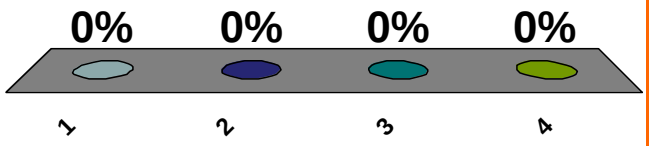
$$g'(9) = ??$$

(a) 1/2

(b) 4

(c) not enough information

(d) none of the above



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	31	32	33	34	35	36	37	38	39	40

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

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

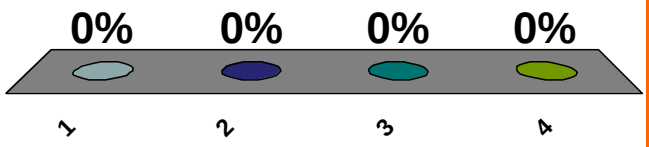
$$g'(6) = ??$$

(a) 1/2

(b) 4

(c) not enough information

(d) none of the above



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	31	32	33	34	35	36	37	38	39	40

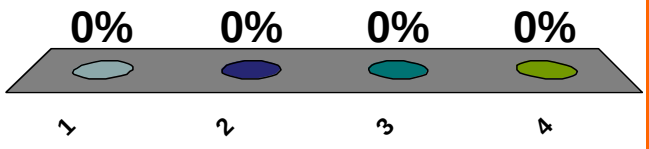
$$\lim_{x\to 0}\left[\frac{e^{2x}-1}{\ln(1+x)}\right] \overset{\text{l'H}}{=} \lim_{x\to 0}[??]$$

(a) $\dfrac{[\ln(1+x)][2e^{2x}]-[e^{2x}-1][1/(1+x)]}{[\ln(1+x)]^2}$

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

(c) l'Hôpital does not apply.

(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	31	32	33	34	35	36	37	38	39	40

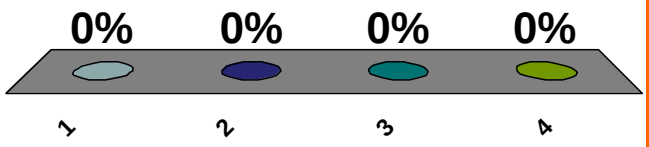
$$\lim_{x\to\infty}\left[\frac{\sin x}{x}\right] \overset{\text{l'H}}{=} \lim_{x\to\infty}[??]$$

(a) $\dfrac{-\cos x}{1}$

(b) $\dfrac{\cos x}{1}$

(c) l'Hôpital does not apply.

(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	31	32	33	34	35	36	37	38	39	40

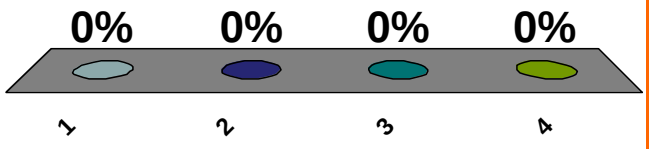
$$\lim_{x \to 0} \frac{e^x - x - 1}{x^4}$$

(a) 0

(b) $\lim_{x \to 0} \frac{e^x - 1}{4x^3}$

(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	31	32	33	34	35	36	37	38	39	40

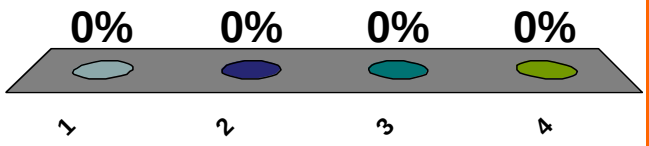
$$\frac{d}{dx}[\cos 7] = ??$$

(a) 0

(b) $\sin 7$

(c) $-\sin 7$

(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	31	32	33	34	35	36	37	38	39	40

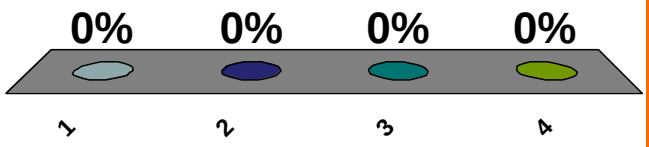
$$\frac{d}{dx}\left[(\ln 5)x\right] = \text{??}$$

(a) 0

(b) $\ln 5$

(c) $x/5$

(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	31	32	33	34	35	36	37	38	39	40

$(d/dx)(e^{-2x})$

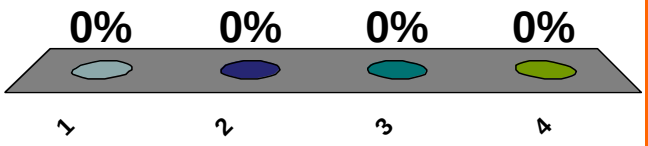
(a) e^{-2x}

(b) e^{-2}

(c) $2e^{2x}$

(d) none of the above

Correct answer: $-2e^{-2x}$



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	31	32	33	34	35	36	37	38	39	40

LOOK AHEAD

$$\int \sin(3x+7)\,dx \qquad \int \frac{1}{1+x^2}\,dx$$

$$\int e^{-8x+9}\,dx \qquad \int \frac{1}{1+9x^2}\,dx$$

CURRENT (implicit diff. & IFT)

Intvls of pos/neg for factored rat'l

LOOK BACK

$$\lim_{n\to\infty}\left(1-\frac{1}{n}-\frac{2}{n^3}\right)^{5n}$$

derivs w.r.t. x of exprs of y

CURRENT (implicit diff. & IFT)

derivs of arcsin, arccos
derivs of arctan, arccot

$\sin(xy) = 4x^2 - 7xy + y^2 e^x$

Slope of tan line to $x^4 + y^4 = 17$ at $(1, 2)$

Eq'n of tan line to $x^4 - 7xy + y^4 = 3$ at $(1, 2)$

$f(x) = x^7 + x$
$g = f^{-1}$
Find $g(2)$ and $g'(2)$.

$f(x) = 2x \quad \Rightarrow \quad f(s+t) = (f(s)) + (f(t))$??

$f(x) = 3x \quad \Rightarrow \quad f(s+t) = (f(s)) + (f(t))$??

$f(x) = 4x+1 \quad \Rightarrow \quad f(s+t) = (f(s))+(f(t))$??

limit of quotient $=$ quotient of limits ?

$$e^{\ln x} = x \quad ?$$

$$\ln e^{x} = x \quad ?$$

$$x^2/x = x \quad ?$$

$$x/x^2 = 1/x \quad ?$$

position $= 2t^3 + 5t^2$

velocity at $t = 3$?

LOOK AHEAD

$$y = (2x^2 - x + 1)(\cos(3x))$$

$\triangle y$, dy,

eq'n of tangent line at $(0, 1)$,

linearization at $x = 0$

SAVE THE SESSION DATA

RETURN TO PRESENTATION