

Calculus

W 7 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

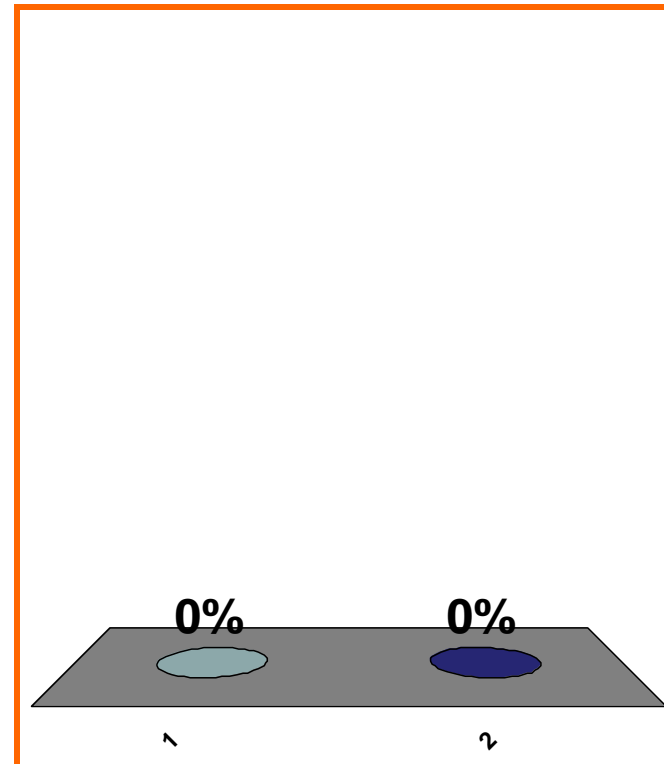
QUIZ
FOLLOWS

T or F:

Any local max is
a global max.

(a) True

(b) False



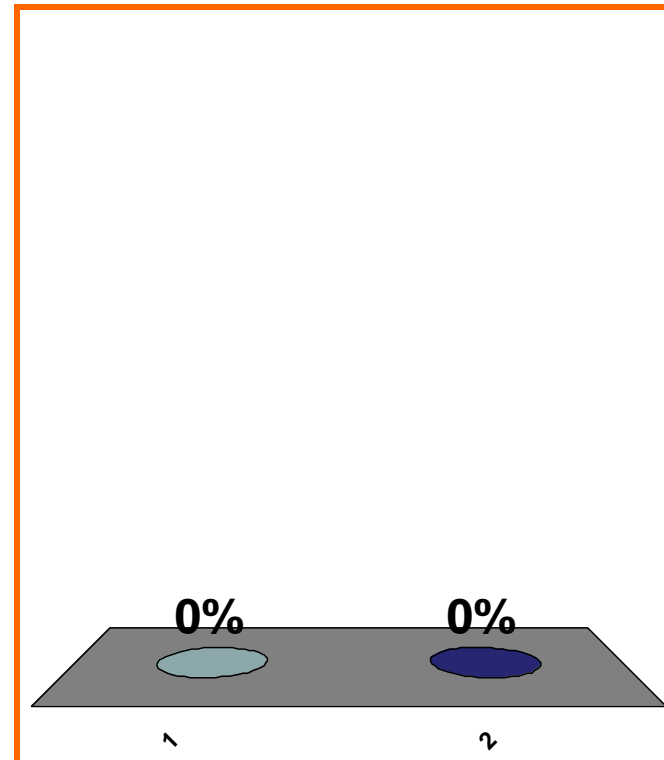
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21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

T or F:

Any global max is
a local max.

(a) True

(b) False



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0 of 5

Topic 0450

0 pts

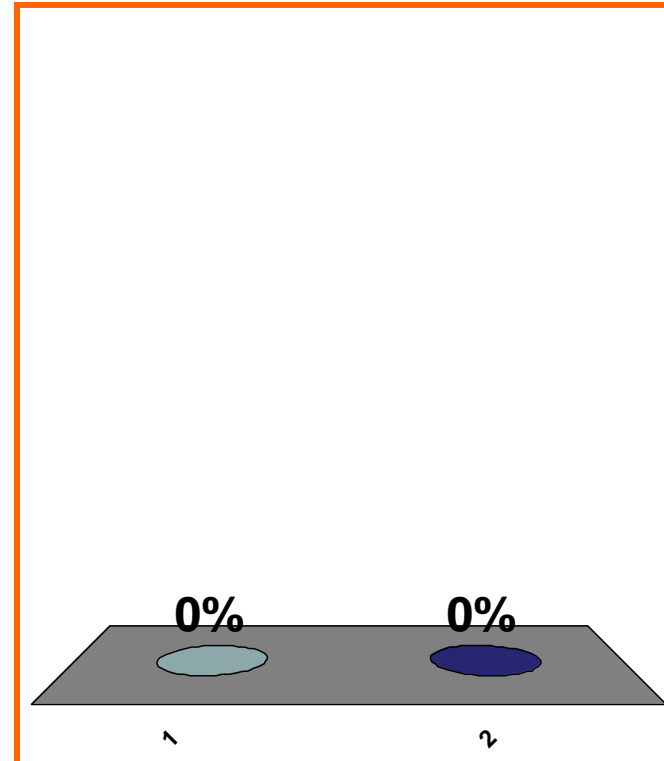
6

T or F:

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

(a) True

(b) False



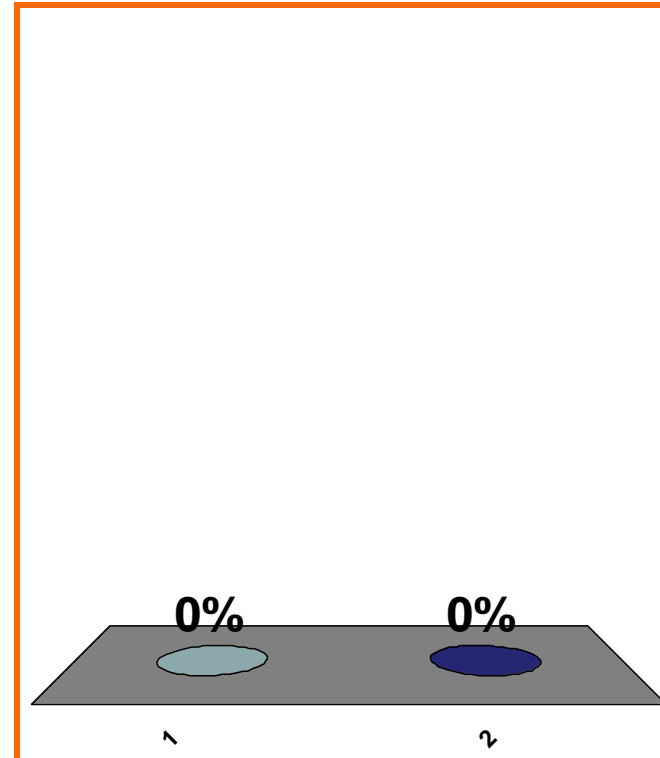
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T or F:

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

(a) True

(b) False



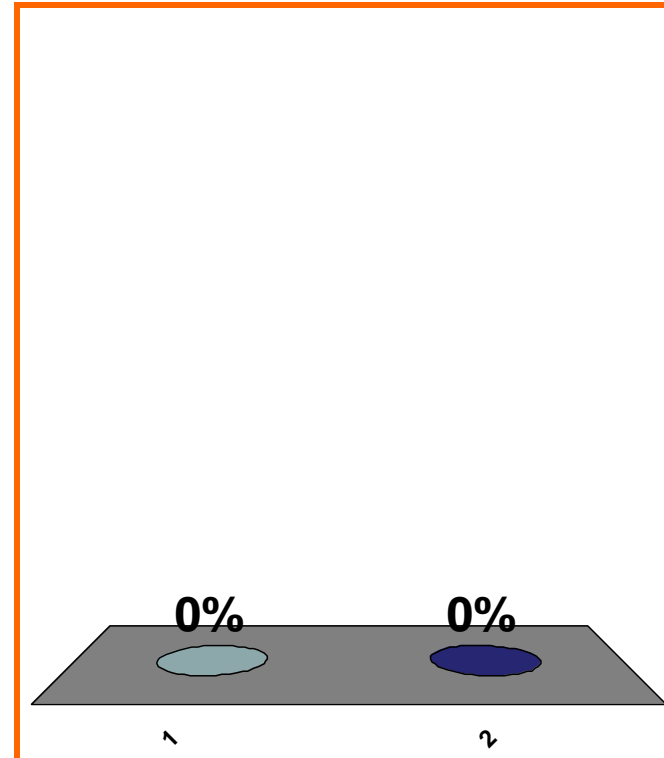
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T or F:

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(a) True

(b) False



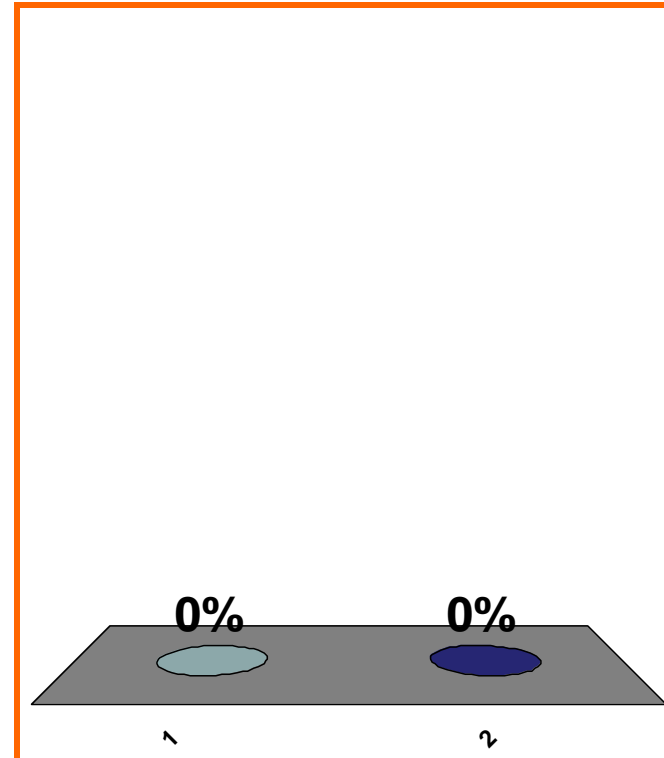
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T or F:

If $f' > 0$ on I ,
then f is increasing on I .

(a) True

(b) False



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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Topic 0460

10 pts

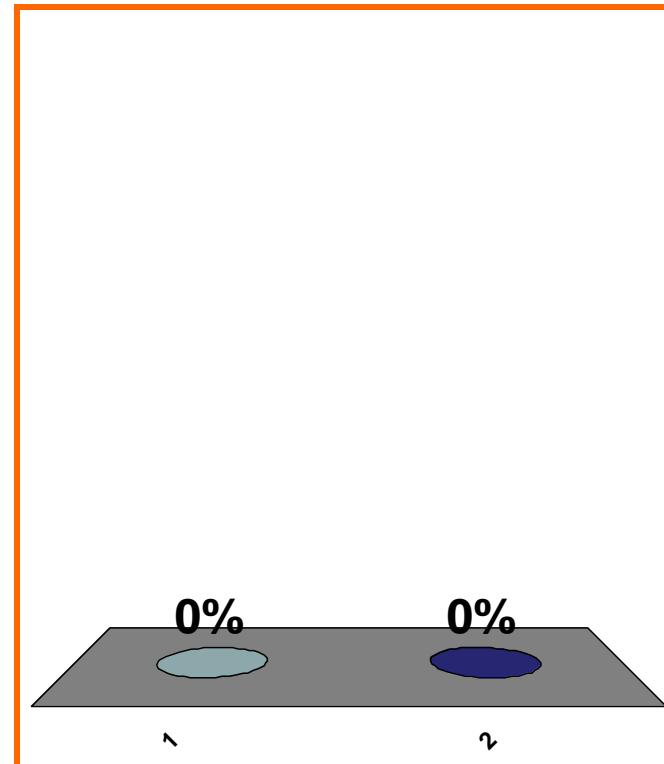
10

T or F: $f : \mathbb{R} \rightarrow \mathbb{R}$

f' pos on $(1, 2)$, $f'(2) = 0$, f' neg on $(2, 3)$
 $\Rightarrow f$ has a global max at 2

(a) True

(b) False



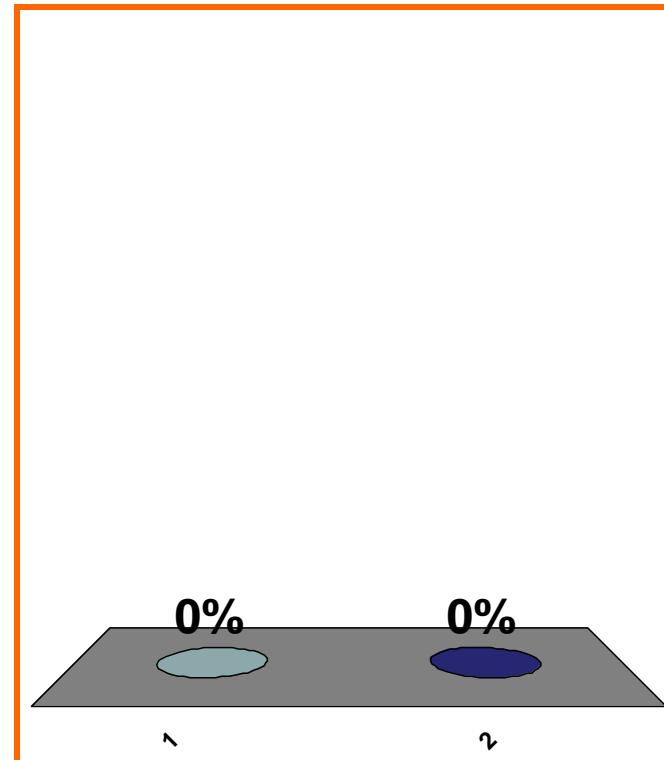
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T or F:

f' pos on $(1, 2)$, $f'(2) = 0$, f' neg on $(2, 3)$
 $\Rightarrow f$ has a local max at 2

(a) True

(b) False



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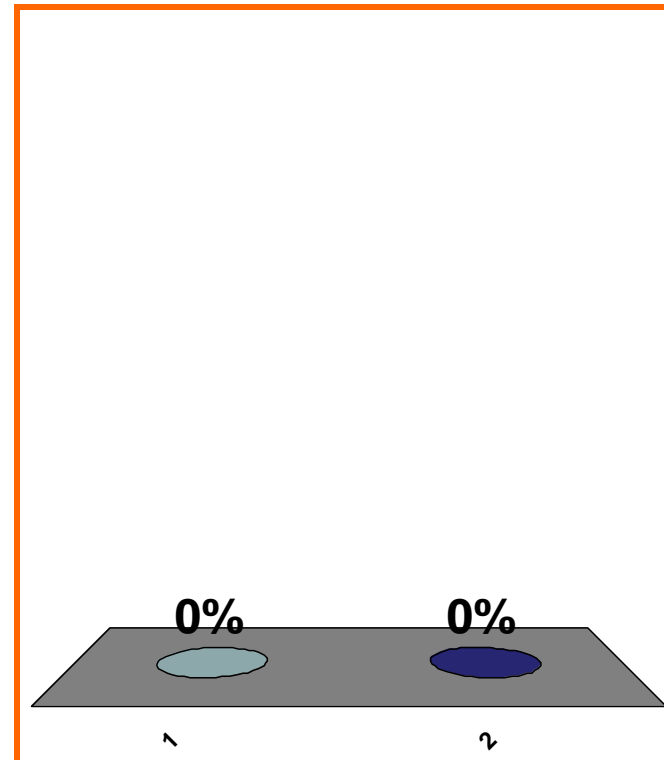
T or F:

$$f'(2) = 0, \quad f''(2) < 0$$

\Rightarrow f has a local max at 2

(a) True

(b) False



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Topic 0460

10 pts

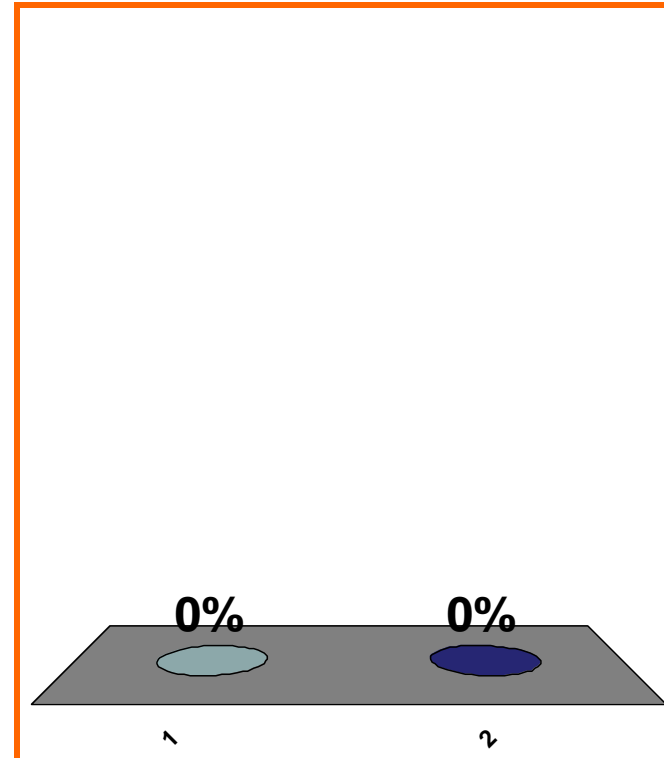
13

T or F:

If $f'' > 0$ on I ,
then f is cc dn on I .

(a) True

(b) False



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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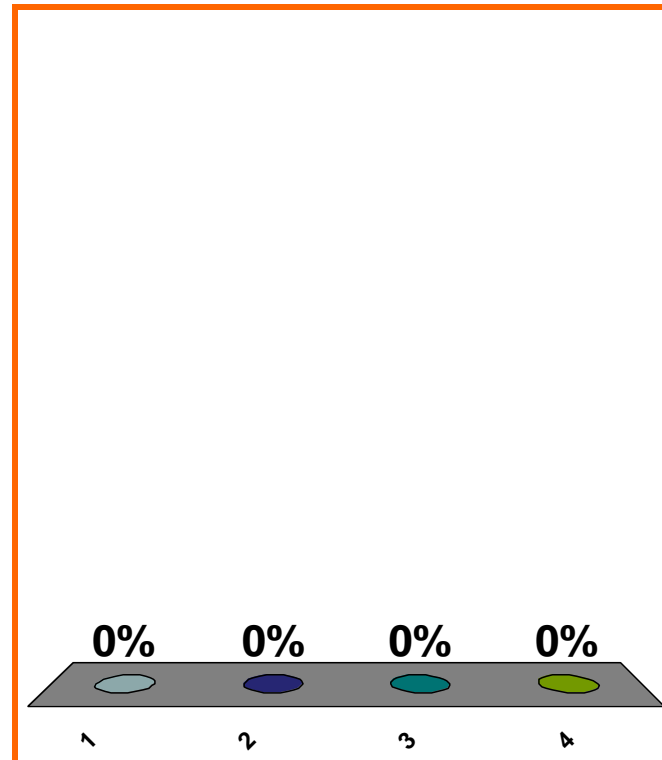
$$[d/dx][xe^y + y] = ??$$

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

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

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

(d) none of the above



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

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

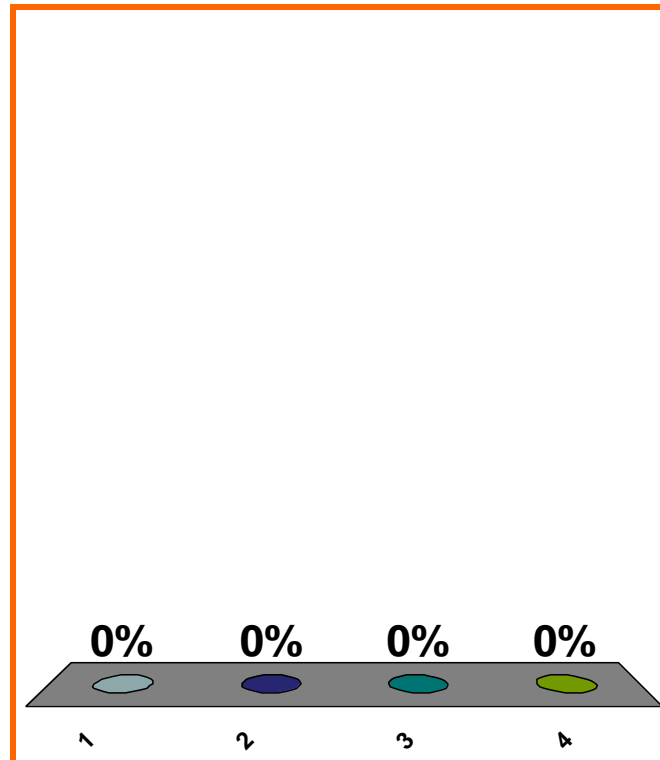
$$g'(6) = ??$$

(a) 1/2

(b) 4

(c) not enough information

(d) none of the above



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Topic 0440

10 pts

16

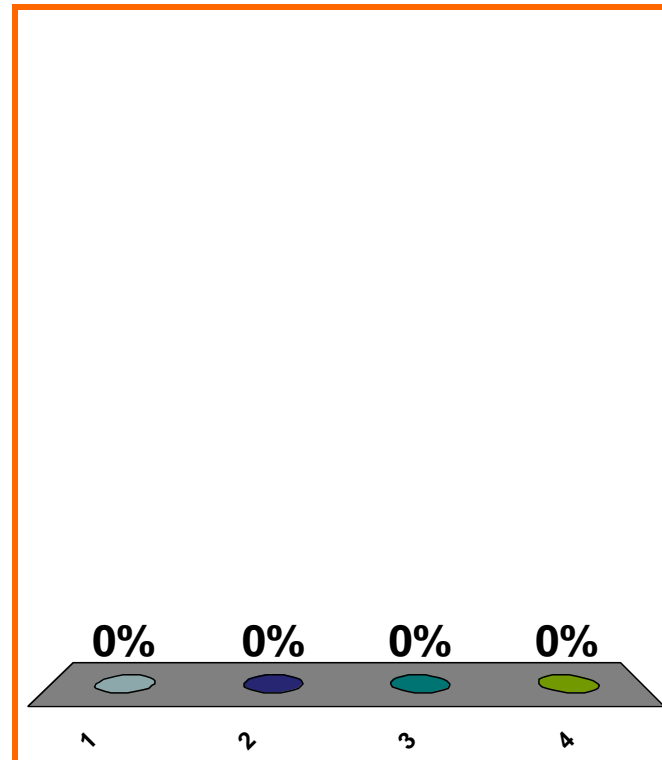
$$\lim_{x \rightarrow \infty} \left[\frac{\sin x}{x} \right] \stackrel{\text{L'H}}{=} \lim_{x \rightarrow \infty} [??]$$

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

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

(c) L'Hôpital does **not** apply.

(d) **none** of the above



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Topic 0410

10 pts

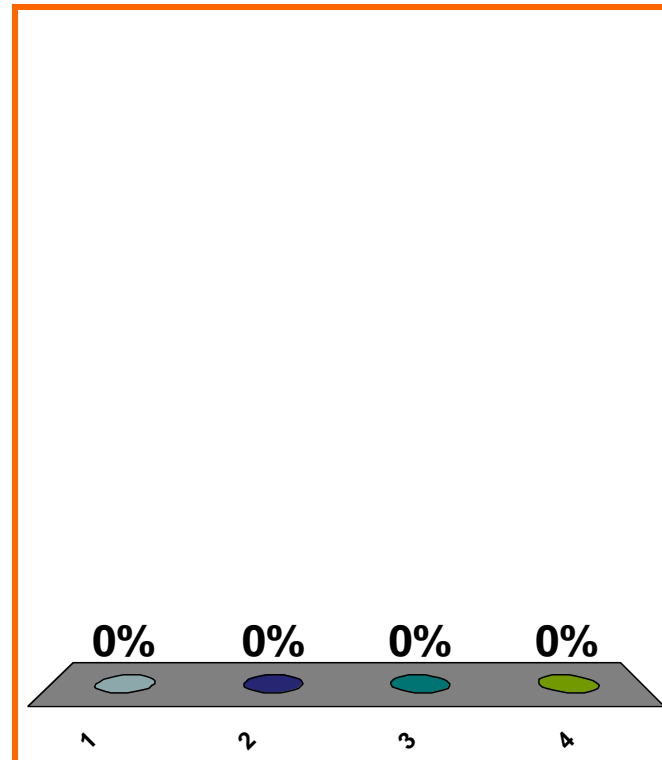
$$\lim_{x \rightarrow 0} \frac{e^x - x - 1}{x^4}$$

(a) 0

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

(c) DNE

(d) none of the above



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Topic 0410

0 pts

18

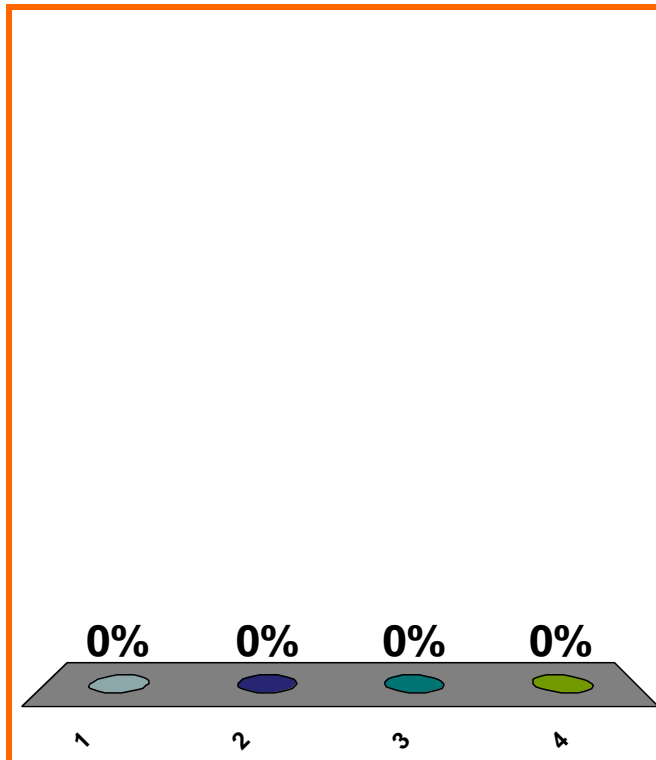
$$\frac{d}{dx} [\csc 4] = ??$$

(a) 0

(b) $(\csc 4)(\cot 4)$

(c) $-(\csc 4)(\cot 4)$

(d) none of the above



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Topic 0310

10 pts

19

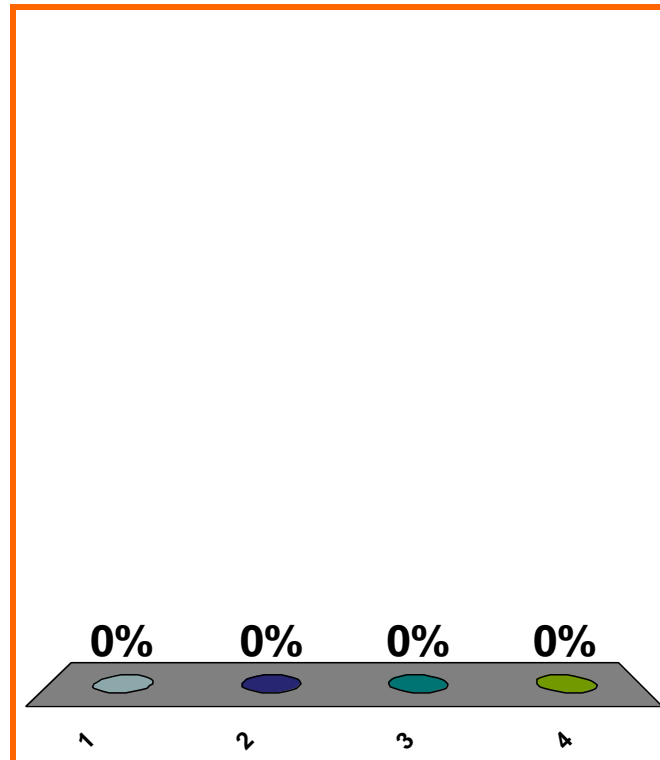
$$\frac{d}{dx} [e^{-2}x] = ??$$

(a) 0

(b) e^{-2}

(c) $x/5$

(d) none of the above



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Topic 0310

10 pts ²⁰

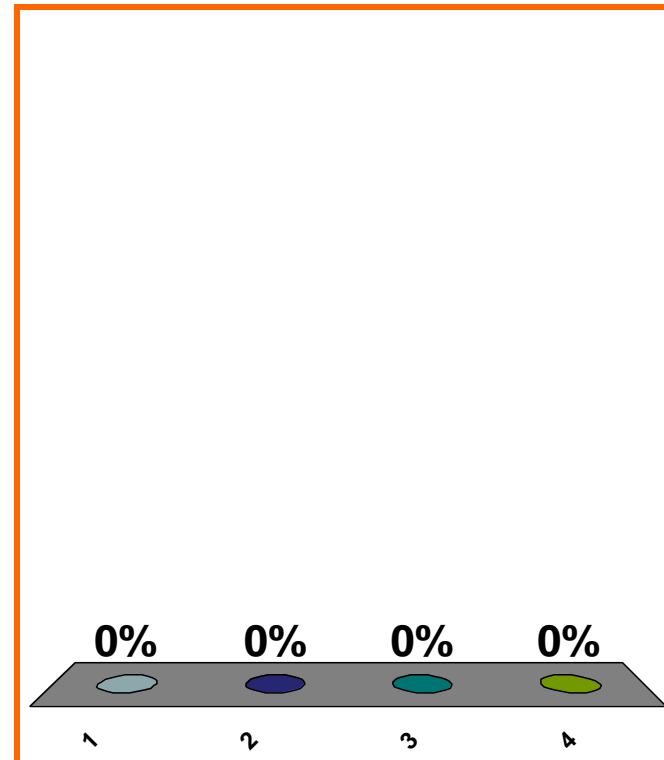
$$\frac{d}{dx} [x^{3/2}]_{x \neq 0} = ??$$

(a) $x^{1/2}$

(b) $\frac{x^{1/2}}{1/2}$

(c) $(3/2)x^{1/2}$

(d) none of the above



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Topic 0310

0 pts

LOOK AHEAD

$$\int \frac{1}{1 + 9x^2} dx$$

$$\int \frac{1}{4x^2 + 8x + 5} dx$$

CURRENT

Intvls of pos/neg for factored rat'l

Intvls of incr/decr, given factored derivative

Intvls of cc up/dn, given factored 2nd deriv

LOOK BACK

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

derivs w.r.t. t of exprs of $r, x, w, \text{ etc.}$

CURRENT (implicit diff. & IFT)

derivs of arcsin, arccos

derivs of arctan, arccot

$$f(x) = x^7 + x$$

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

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 ?

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

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

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

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

$$\text{position} = 2t^3 + 5t^2$$

$$\text{velocity at } t = 3 \quad ?$$

LOOK AHEAD

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

Δy , dy ,

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

SAVE THE
SESSION
DATA

RETURN TO
PRESENTATION