

Calculus

F 9 November 2012

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

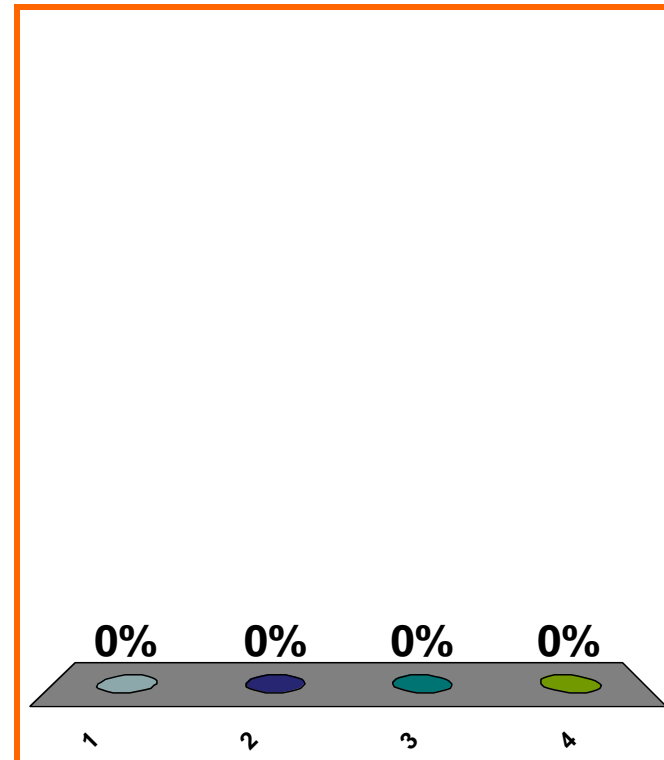
line's slope = 8
goes through (2, 7)
equation?

(a) $y - 7 = 8(x - 2)$

(b) $x - 7 = 8(y - 2)$

(c) $y - 8 = 7(x - 2)$

(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

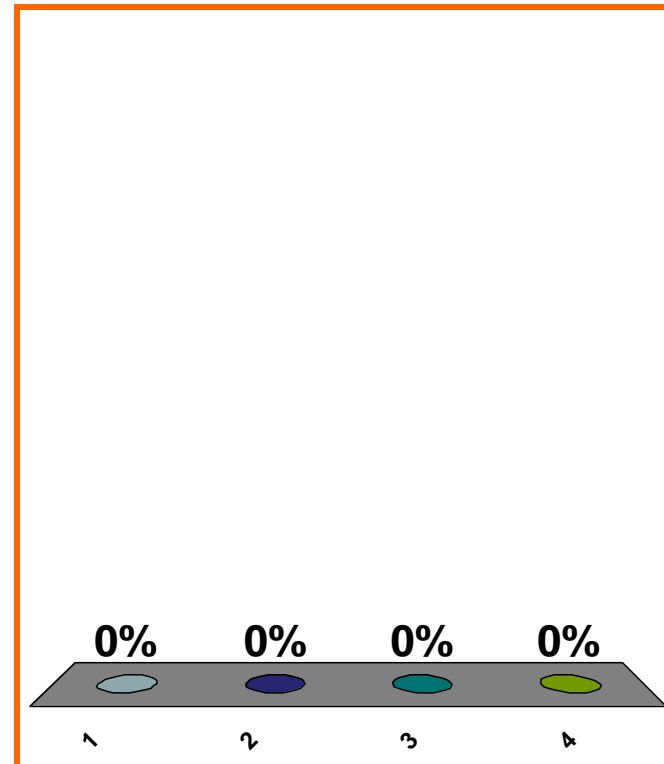
line's slope = 8
goes through (2, 7)
equation?

(a) $x = 7 + 8(y - 2)$

(b) $y = 7 + 8(x - 2)$

(c) $y = 8 + 7(x - 2)$

(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

0 of 5

Topic 0060

10 pts

tangent line to $y = f(x)$ at $(2, 7)$

$$y - 7 = 8(x - 2)$$

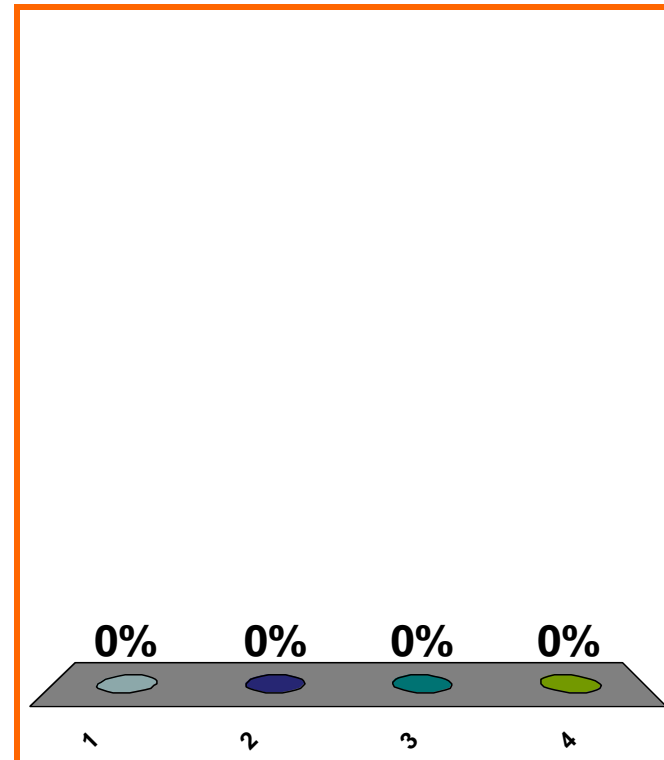
“linearization” of $f(x)$ at $x = 2$?

(a) 8

(b) $8(x - 2)$

(c) $7 + 8(x - 2)$

(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

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

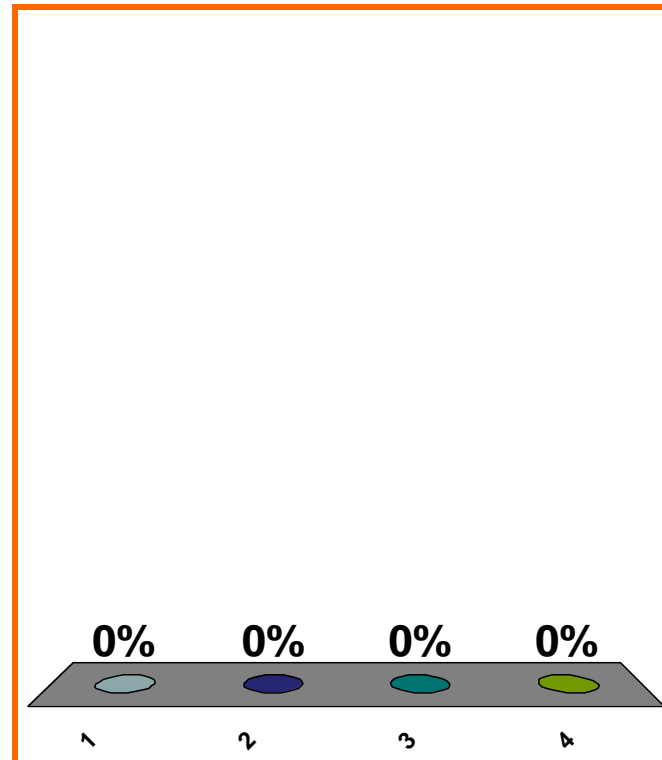
Linear approx. to $f(x)$
at $x = 7$?

(a) $4 - 8(x - 7)$

(b) $7x^2 - 8x + 4$

(c) $-8 + 4(x - 7)$

(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

0 of 5

Topic 0540

0 pts

8

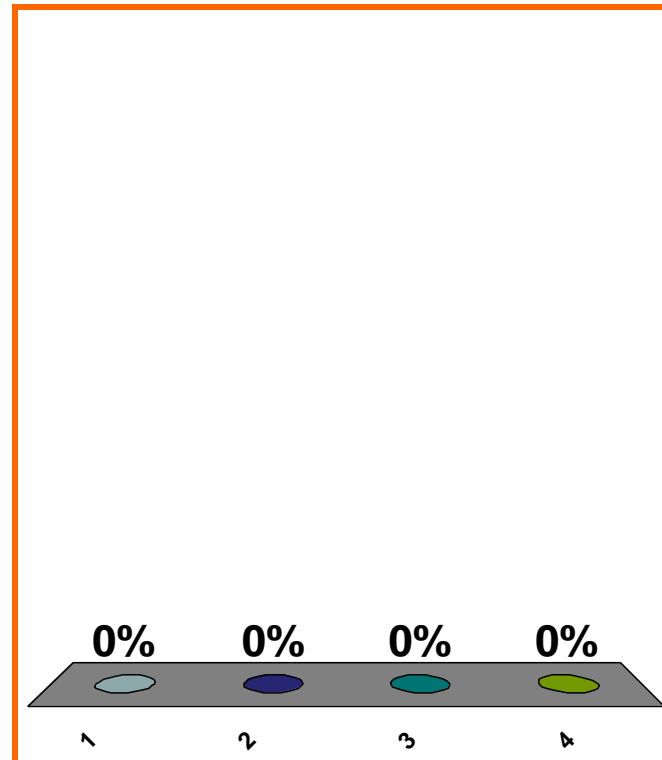
$g(2) = -3, \quad g'(2) = 5$
Linear approx. to $g(x)$
at $x = 2$?

(a) $5 - 3(x - 2)$

(b) $2x^2 + 5x - 3$

(c) $-3 + 5(x - 2)$

(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

$$f(5) = -2, \quad f'(5) = 39$$

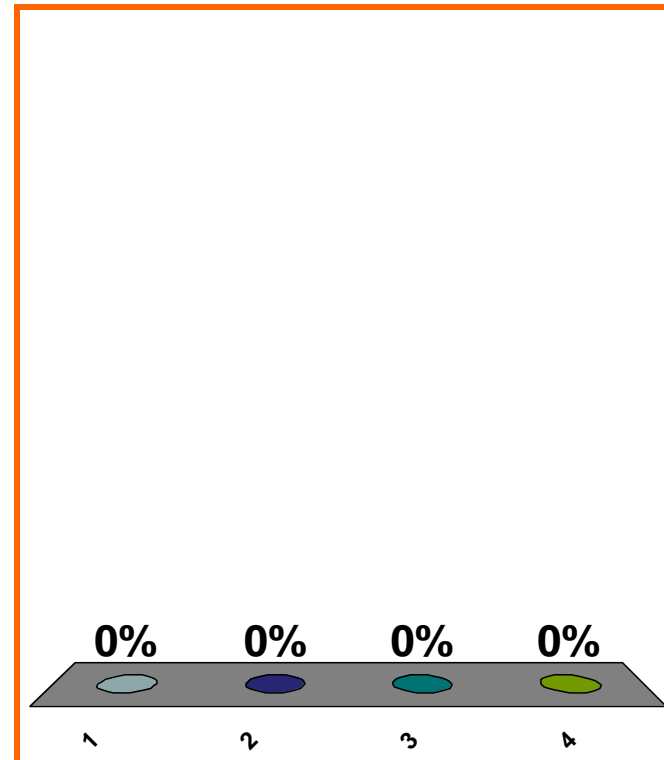
Linear approx. to $f(x)$
at $x = 5$?

(a) $39 - 2(x - 5)$

(b) $-2 + 39(x - 5)$

(c) $5x^2 + 39x - 2$

(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

$$g(9) = -3, \quad g'(9) = -8$$

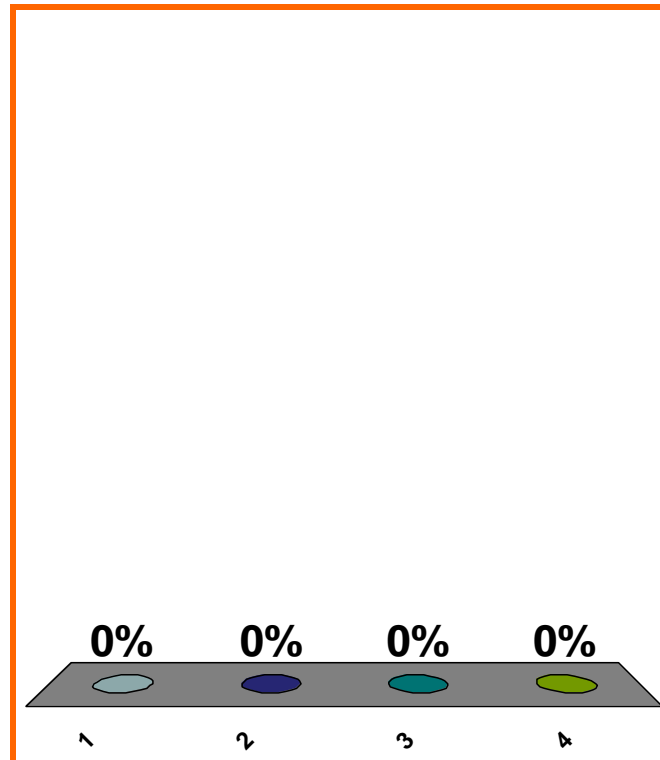
Linear approx. to $g(x)$
at $x = 9$?

(a) $-3 - 8(x - 9)$

(b) $-8 - 3(x - 9)$

(c) $9x^2 - 8x - 3$

(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	31	32	33	34	35	36	37	38	39	40

tangent line to $y = f(x)$ at $(2, 7)$

$$y - 7 = 8(x - 2)$$

“linearization” of $f(x)$ at $x = 2$?

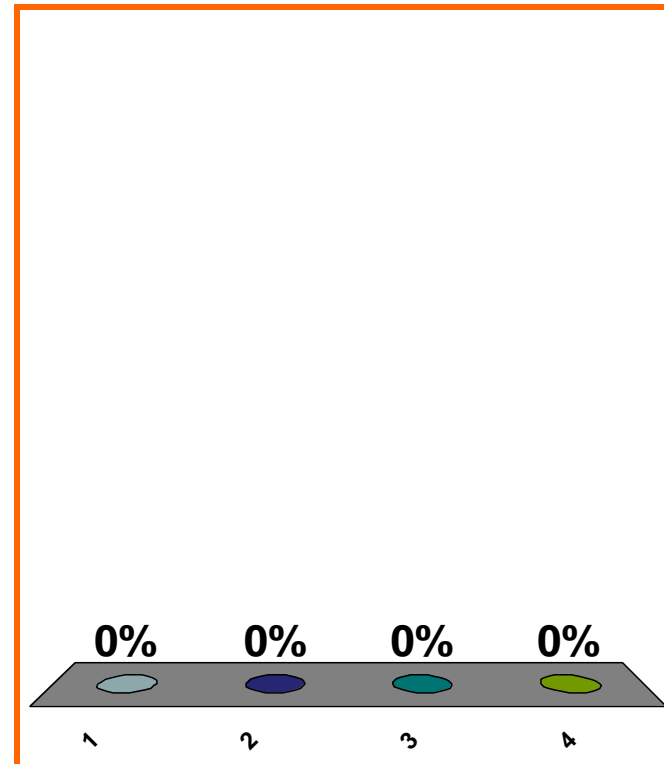
(a) 8

(b) 7

(c) $8(x - 2)$

(d) none of the above

Correct answer: $7 + 8(x - 2)$



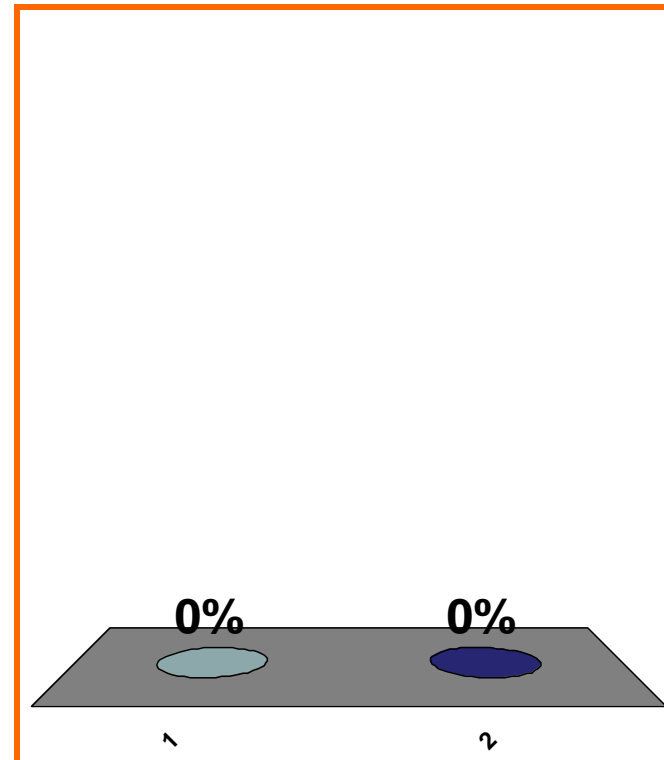
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21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

T or F:

If f is cc down on I ,
then $f'' < 0$ on I .

(a) True

(b) False



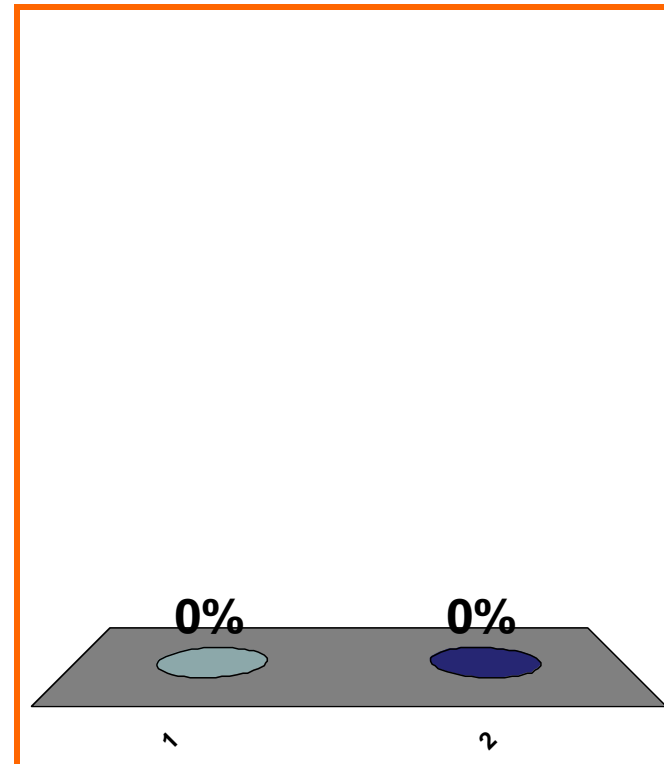
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

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



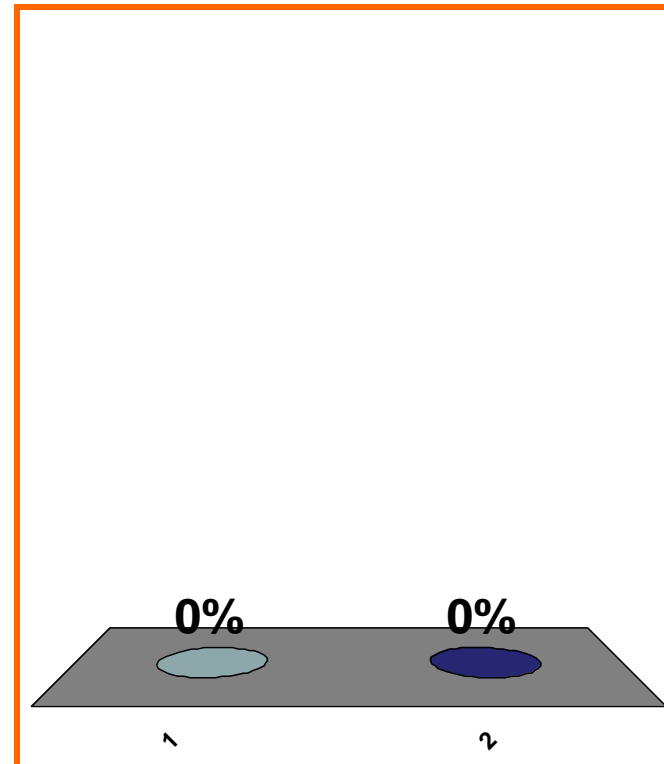
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21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

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



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

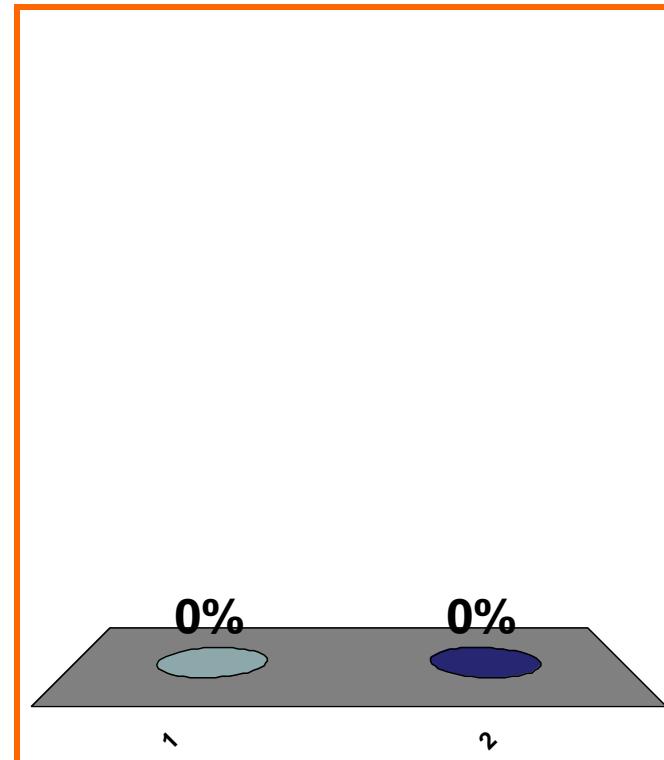
T or F:

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

\Rightarrow f has a local max at 2

(a) True

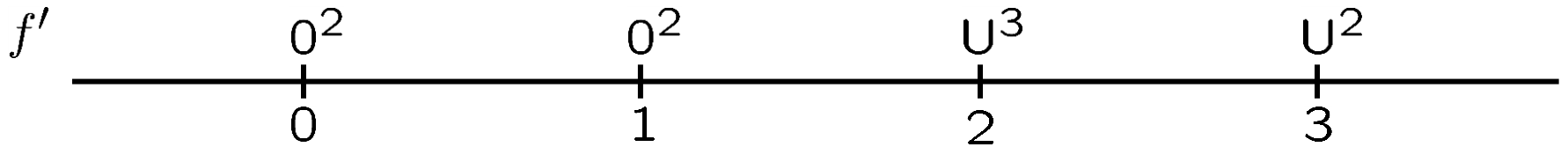
(b) False



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

max intervals of incr

for f , if $f'(x) = x^2(x-1)^2/(x-2)^3(x-3)^2$.



(a) $[0, \infty)$

NOTE:
 $f(2)$ and $f(3)$
DNE

(b) $[1, \infty)$

(c) $[2, \infty)$

(d) none of the above

Correct: $(2, 3)$ and $(3, \infty)$

A large empty rectangular box with an orange border. At the bottom of the box, there is a horizontal bar with four colored ovals (light blue, dark blue, teal, and light green) and the text "0%" above each oval. Below the bar are small arrows pointing left and right.

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 0470

0 pts

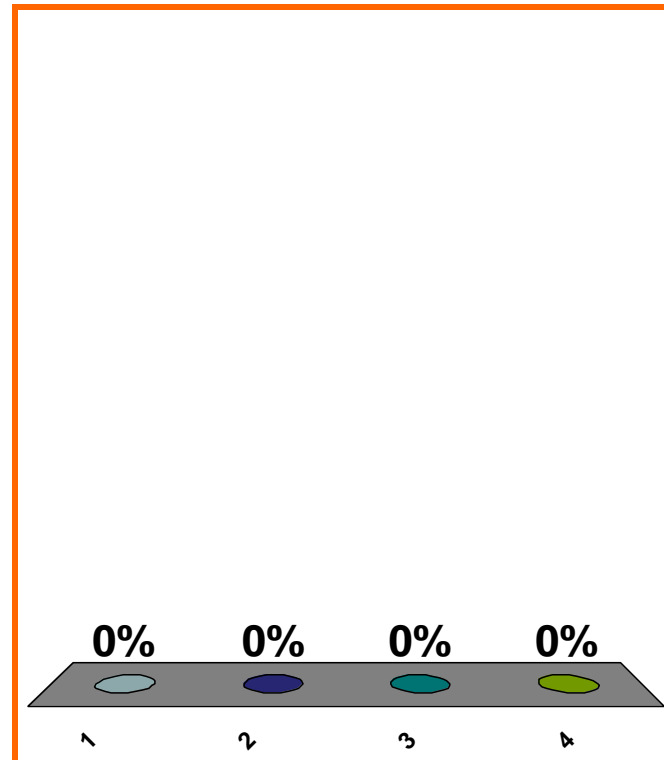
Newton's method formula to solve $2x^3 - 4x + 8 = 0$.

$$(a) \quad x_{n+1} = x_n - \frac{6x_n^2 - 4}{2x_n^3 - 4x_n + 8}$$

$$(b) \quad x_{n+1} = x_n + \frac{6x_n^2 - 4}{2x_n^3 - 4x_n + 8}$$

$$(c) \quad x_{n+1} = x_n - \frac{2x_n^3 - 4x_n + 8}{6x_n^2 - 4}$$

(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

Newton's method
for solving $e^{2x} + x = 4$:

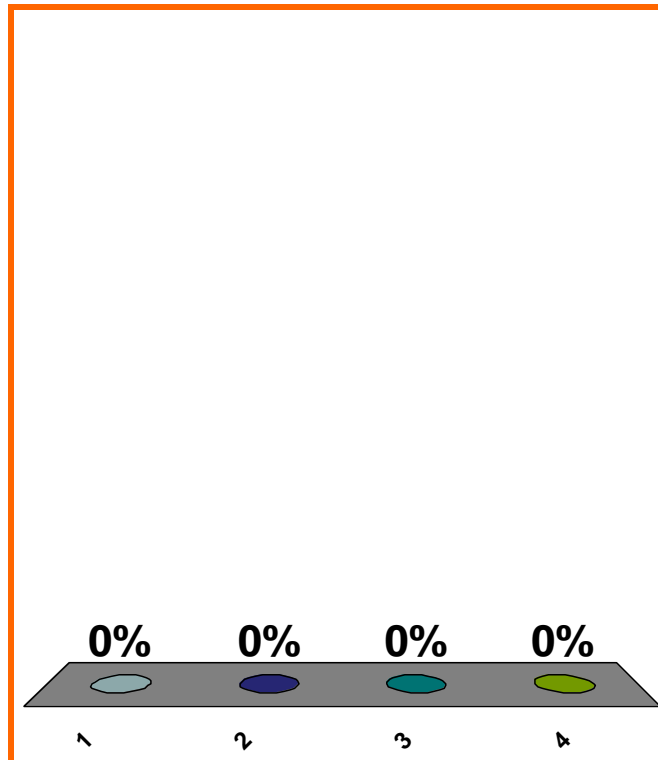
$$x_{n+1} = ??$$

$$(a) \quad x_n - \frac{e^{2x_n} + x_n - 4}{2e^{2x_n} + 1}$$

$$(b) \quad x_n - \frac{e^{2x_n} + x_n}{e^{2x_n} + 1}$$

$$(c) \quad x_n - \frac{e^{2x_n} + x_n - 4}{e^{2x_n} + 1}$$

(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

Newton's method formula
to solve $x^5 + x^3 = 4$.

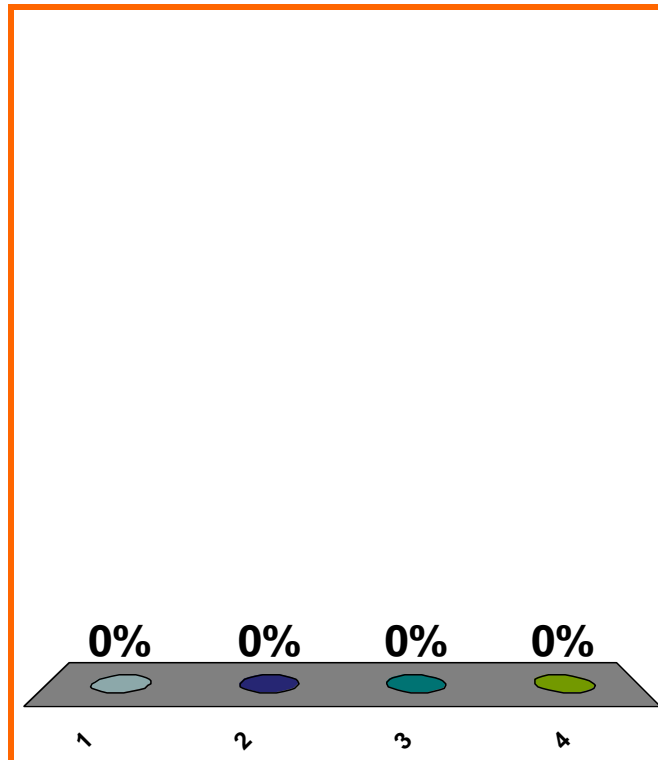
(a) $x_{n+1} = x_n + \frac{x_n^5 + x_n^3}{5x_n^4 + 3x_n^2}$

(b) $x_{n+1} = x_n + \frac{5x_n^4 + 3x_n^2}{x_n^5 + x_n^3}$

(c) $x_{n+1} = x_n - \frac{x_n^5 + x_n^3}{5x_n^4 + 3x_n^2}$

(d) none of the above

Correct: $x_{n+1} = x_n - \frac{x_n^5 + x_n^3 - 4}{5x_n^4 + 3x_n^2}$



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

Newton's method
for solving $f(x) = 1$:

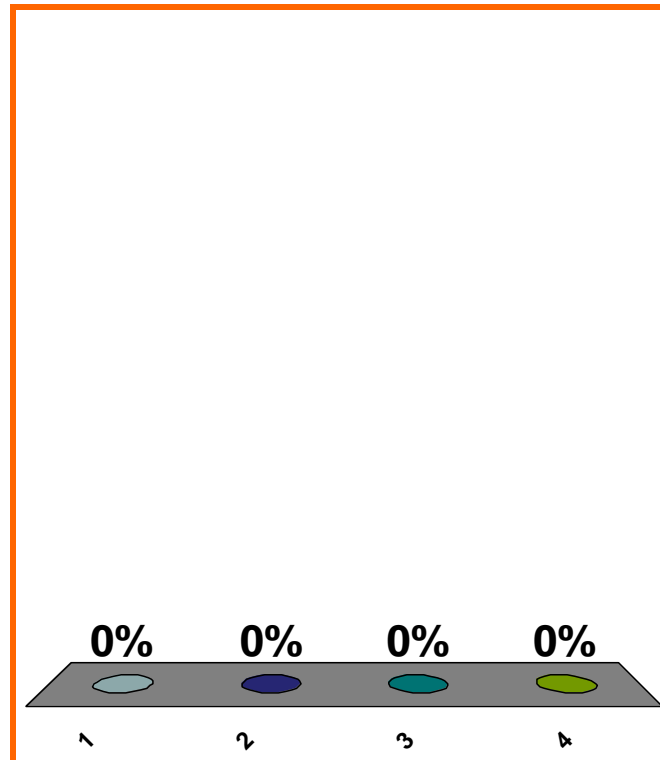
$$x_{n+1} = ??$$

(a) $x_n - \frac{f(x_n)}{f'(x_n)}$

(b) $x_n - \frac{f'(x_n)}{f(x_n)}$

(c) $x_n - \frac{[f(x_n)] - 1}{f'(x_n)}$

(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	31	32	33	34	35	36	37	38	39	40

SAVE THE
SESSION
DATA

RETURN TO
PRESENTATION