

Calculus

W 10 April 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

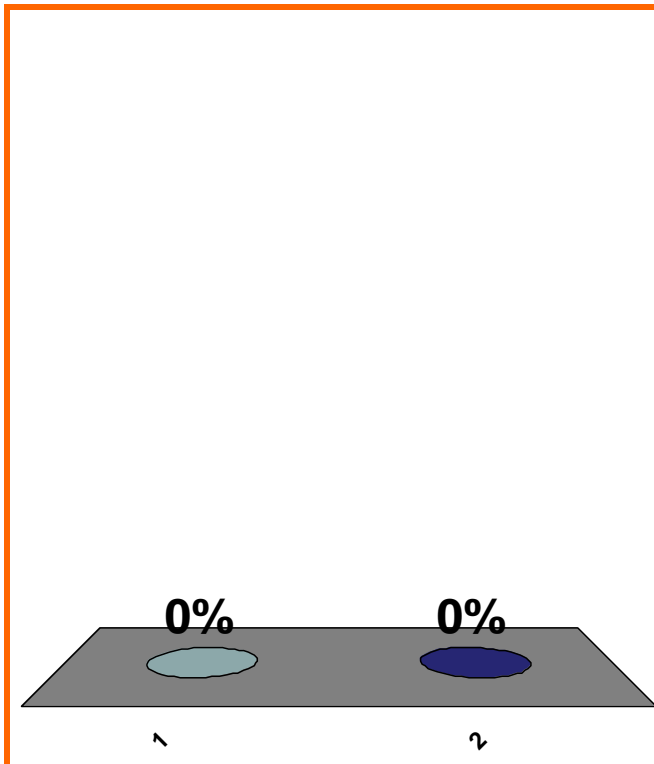
Topics covered are in bounds

QUIZ
FOLLOWS

$$1 + 1 = ??$$

(a) 1

(b) 2



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

arithmetic

0 pts

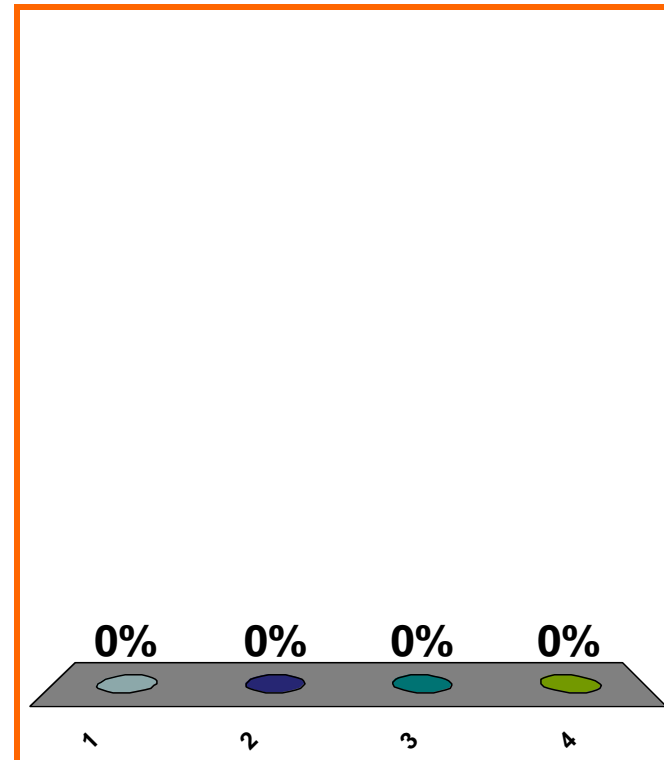
$$\int \sin(2x) dx = ??$$

(a) $2 \cos(2x) + C$

(b) $\frac{\cos(2x)}{2} + C$

(c) $-2 \cos(2x) + C$

(d) $-\frac{\cos(2x)}{2} + C$



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

$$\frac{d}{dx} [5^x] = (5^x)(\ln 5)$$

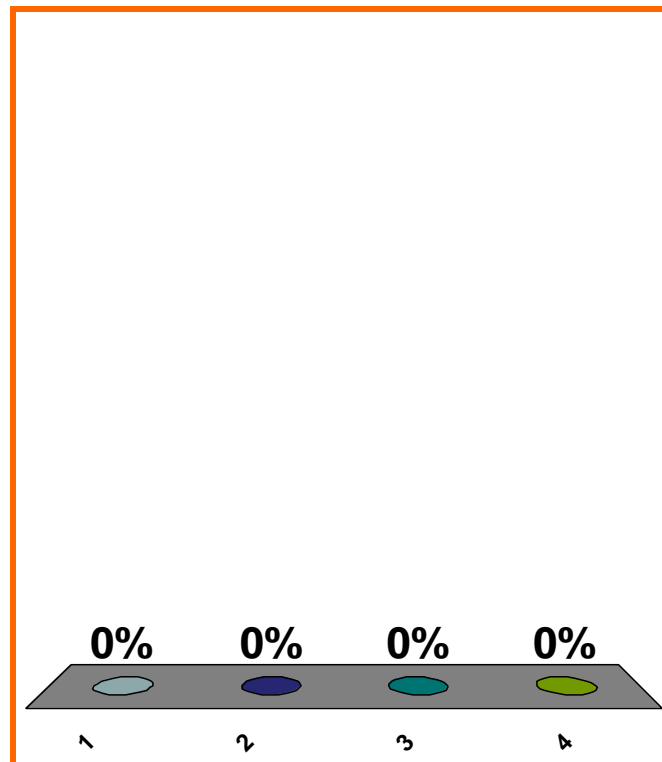
$$\int x^2 + 5^x dx = ??$$

(a) $\frac{x^3}{3} + \frac{5^{x+1}}{x+1} + C$

(b) $2x + (5^x)(\ln 5) + C$

(c) $\frac{x^3}{3} + \frac{5^x}{\ln 5} + C$

(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 0570

20 pts

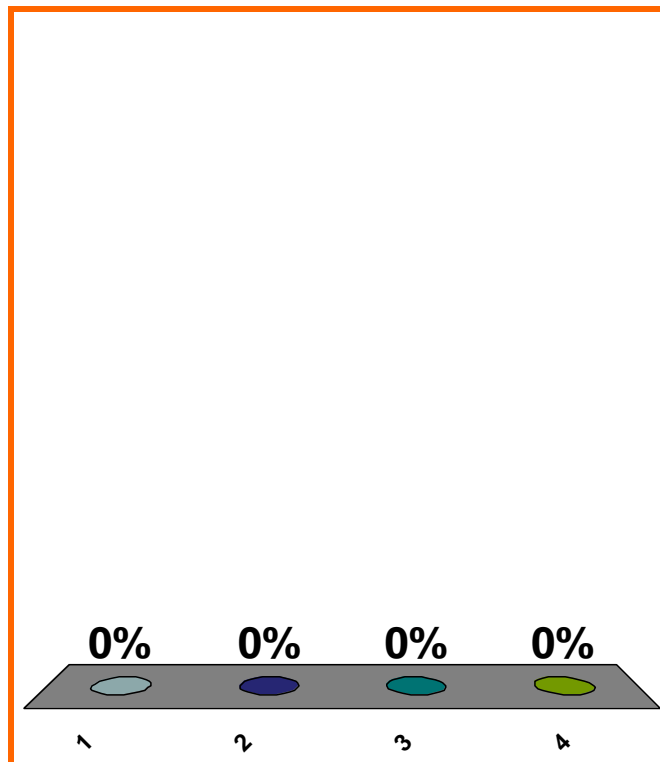
$$(a) \sum_{j=1}^n \left[\frac{3}{n} \right] \left[e^{1+(3j/n)} \right]$$

$$(b) \sum_{j=1}^n \left[\frac{3}{n} \right] \left[e^{1+(3j/n)-(3/n)} \right]$$

$$(c) \sum_{j=1}^n \left[\frac{3}{n} \right] \left[e^{1+(3j/n)-(3/(2n))} \right]$$

(d) none of the above

n th rt endpt Riem. sum
for $\int_1^4 e^x dx$



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

$$(a) \sum_{j=1}^n \left[\frac{3}{n} \right] \left[e^{1+(3j/n)} \right]$$

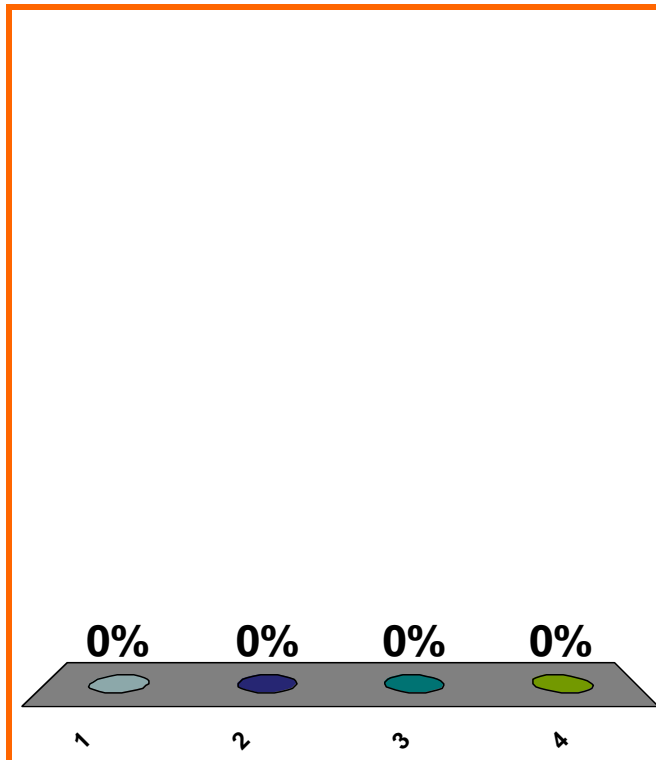
n th left endpt Riem. sum

for $\int_1^4 e^x dx$

$$(b) \sum_{j=1}^n \left[\frac{3}{n} \right] \left[e^{1+(3j/n)-(3/n)} \right]$$

$$(c) \sum_{j=1}^n \left[\frac{3}{n} \right] \left[e^{1+(3j/n)-(3/(2n))} \right]$$

(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 0590

20 pts

n th midpt Riem. sum

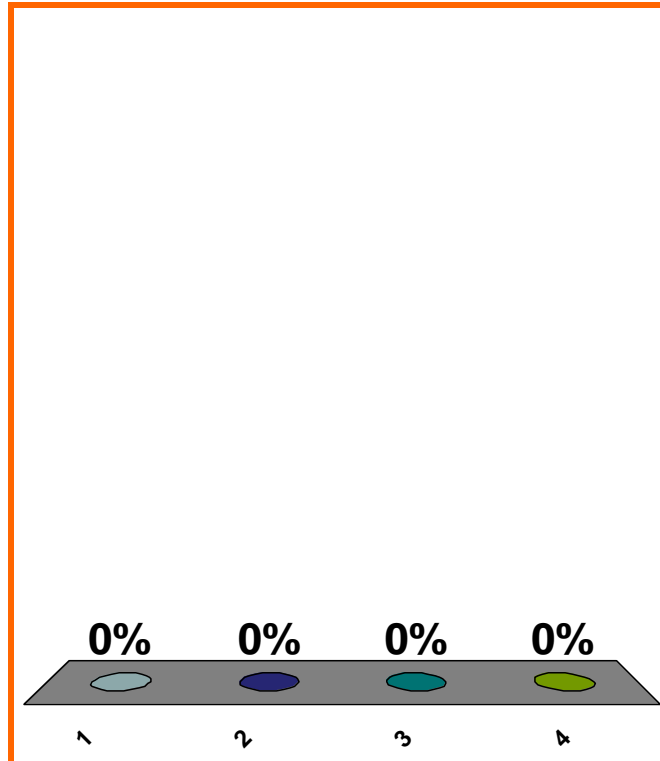
for $\int_1^4 e^x dx$

(a) $\sum_{j=1}^n \left[\frac{3}{n} \right] \left[e^{1+(3j/n)} \right]$

(b) $\sum_{j=1}^n \left[\frac{3}{n} \right] \left[e^{1+(3j/n)-(3/n)} \right]$

(c) $\sum_{j=1}^n \left[\frac{3}{n} \right] \left[e^{1+(3j/n)-(3/(2n))} \right]$

(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

END
QUIZ

END
CLASS

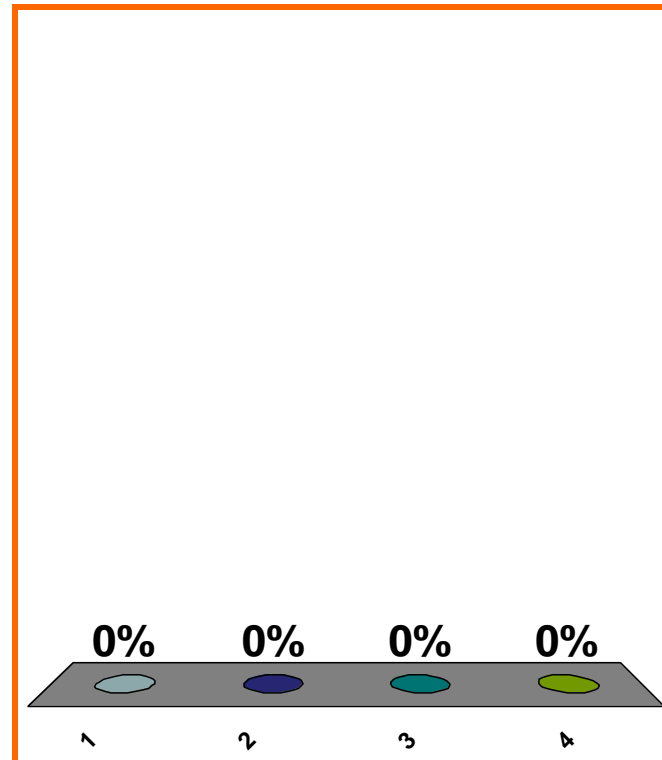
$$(a) \sum_{j=1}^n \left[\frac{1}{n} \right] \left[e^{1+(j/n)} \right]$$

$$(b) \sum_{j=1}^n \left[\frac{1}{n} \right] \left[e^{1+(j/n)-(1/n)} \right]$$

$$(c) \sum_{j=1}^n \left[\frac{1}{n} \right] \left[e^{1+(j/n)-(1/(2n))} \right]$$

(d) none of the above

n th rt endpt Riem. sum
for $\int_1^2 e^x dx$



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

n th left endpt Riem. sum

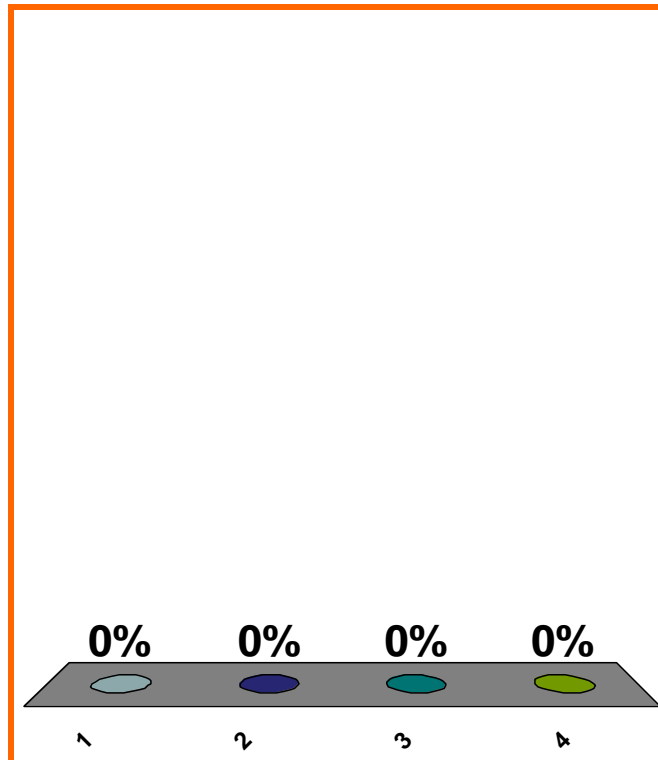
$$(a) \sum_{j=1}^n \left[\frac{1}{n} \right] \left[e^{1+(j/n)} \right]$$

for $\int_1^2 e^x dx$

$$(b) \sum_{j=1}^n \left[\frac{1}{n} \right] \left[e^{1+(j/n)-(1/n)} \right]$$

$$(c) \sum_{j=1}^n \left[\frac{1}{n} \right] \left[e^{1+(j/n)-(1/(2n))} \right]$$

(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

n th midpt Riem. sum

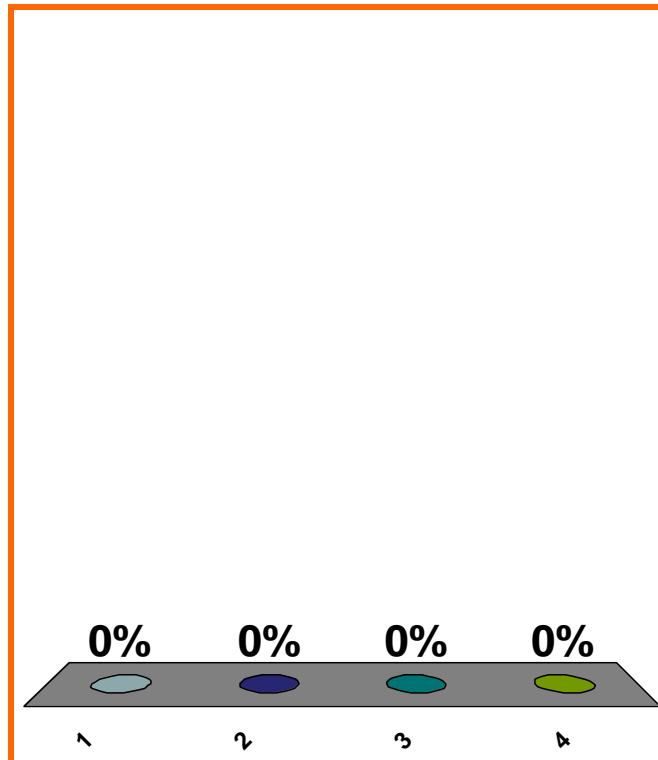
for $\int_1^2 e^x dx$

(a) $\sum_{j=1}^n \left[\frac{1}{n} \right] \left[e^{1+(j/n)} \right]$

(b) $\sum_{j=1}^n \left[\frac{1}{n} \right] \left[e^{1+(j/n)-(1/n)} \right]$

(c) $\sum_{j=1}^n \left[\frac{1}{n} \right] \left[e^{1+(j/n)-(1/(2n))} \right]$

(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

$$(a) \sum_{j=1}^n \left[\frac{4}{n} \right] \left[(2 + (4j/n))^5 \right]$$

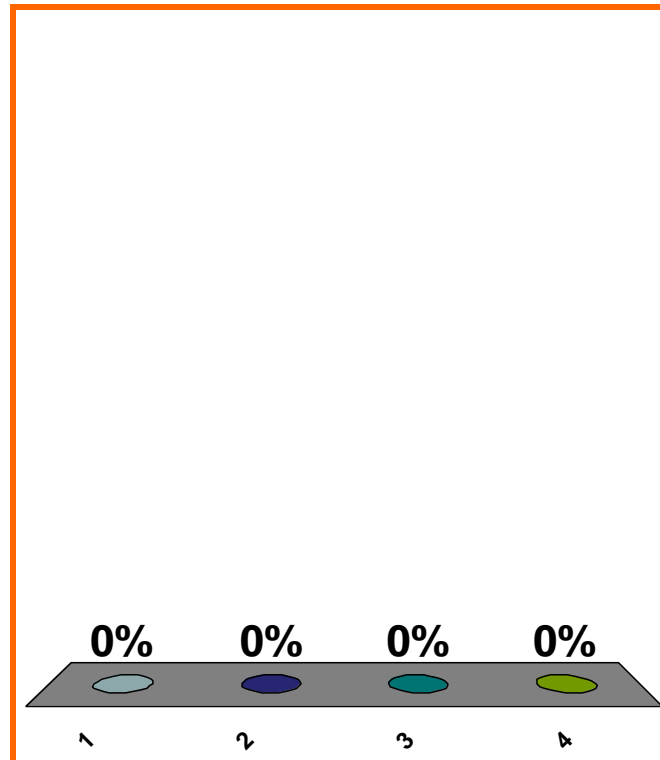
n th left endpt Riem. sum

for $\int_2^6 x^5 dx$

$$(b) \sum_{j=1}^n \left[\frac{4}{n} \right] \left[(2 + (4j/n) - (4/n))^5 \right]$$

$$(c) \sum_{j=1}^n \left[\frac{4}{n} \right] \left[(2 + (4j/n) - (4/(2n)))^5 \right]$$

(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

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Topic 0590

0 pts

16

$$(a) \sum_{j=1}^n \left[\frac{4}{n} \right] \left[(2 + (4j/n))^5 \right]$$

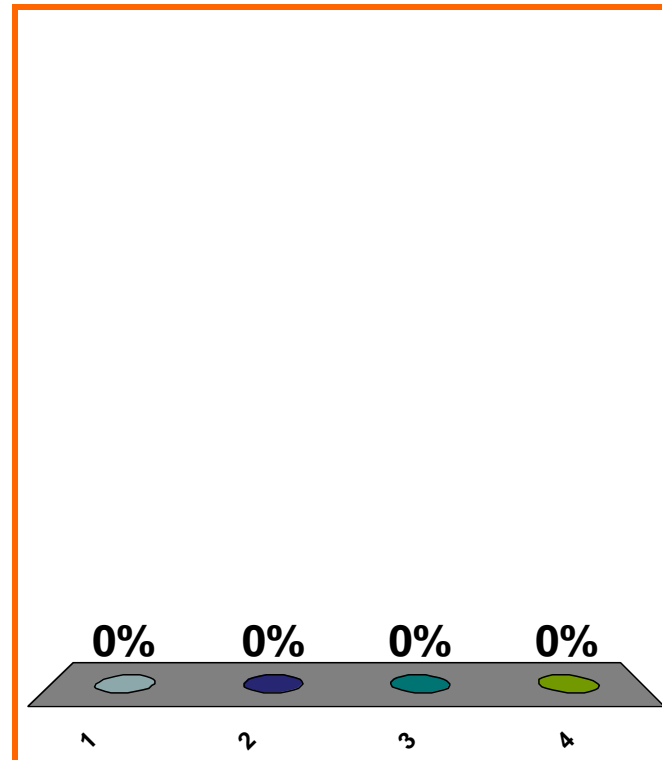
n th right endpt Riem. sum

$$\text{for } \int_2^6 x^5 dx$$

$$(b) \sum_{j=1}^n \left[\frac{4}{n} \right] \left[(2 + (4j/n) - (4/n))^5 \right]$$

$$(c) \sum_{j=1}^n \left[\frac{4}{n} \right] \left[(2 + (4j/n) - (4/(2n)))^5 \right]$$

(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

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Topic 0590

0 pts

17

$$(a) \sum_{j=0}^{n-1} \left[\frac{4}{n} \right] \left[(2 + (4j/n))^5 \right]$$

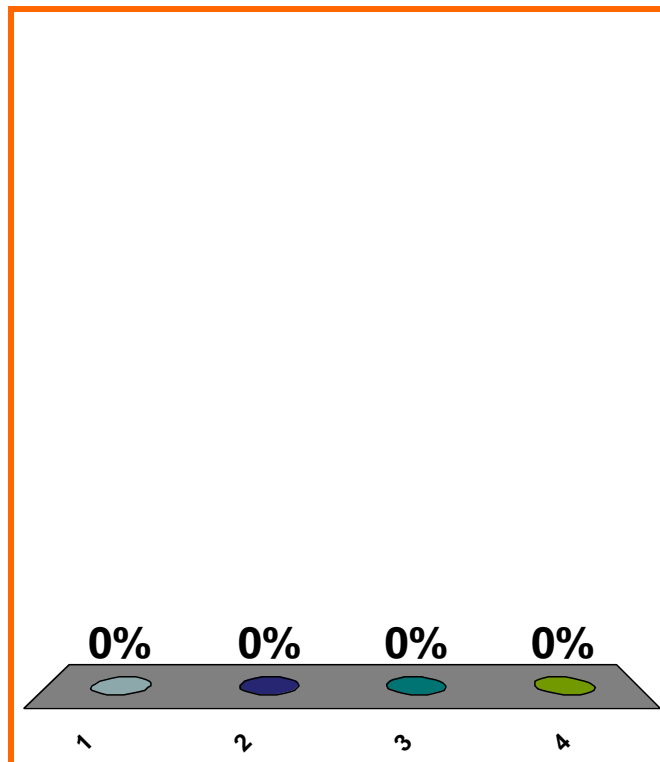
n th left endpt Riem. sum

for $\int_2^6 x^5 dx$

$$(b) \sum_{j=0}^{n-1} \left[\frac{4}{n} \right] \left[(2 + (4j/n) - (4/n))^5 \right]$$

$$(c) \sum_{j=0}^{n-1} \left[\frac{4}{n} \right] \left[(2 + (4j/n) + (4/(2n)))^5 \right]$$

(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

$$(a) \sum_{j=0}^{n-1} \left[\frac{4}{n} \right] \left[(2 + (4j/n))^5 \right]$$

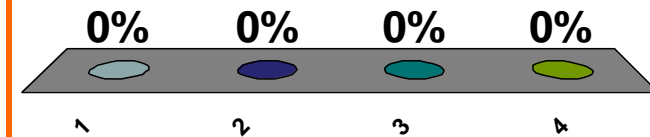
n th midpt Riem. sum

$$\text{for } \int_2^6 x^5 dx$$

$$(b) \sum_{j=0}^{n-1} \left[\frac{4}{n} \right] \left[(2 + (4j/n) - (4/n))^5 \right]$$

$$(c) \sum_{j=0}^{n-1} \left[\frac{4}{n} \right] \left[(2 + (4j/n) + (4/(2n)))^5 \right]$$

(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

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Topic 0590

0 pts

19

$$(a) \sum_{j=0}^{n-1} \left[\frac{4}{n} \right] \left[(2 + (4j/n))^5 \right]$$

n th right endpt Riem. sum

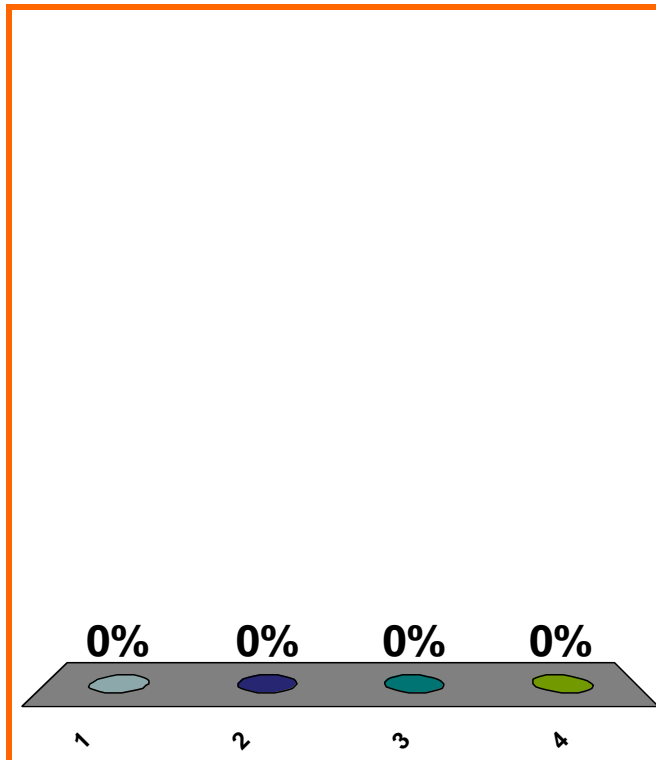
$$\text{for } \int_2^6 x^5 dx$$

$$(b) \sum_{j=0}^{n-1} \left[\frac{4}{n} \right] \left[(2 + (4j/n) - (4/n))^5 \right]$$

$$(c) \sum_{j=0}^{n-1} \left[\frac{4}{n} \right] \left[(2 + (4j/n) + (4/(2n)))^5 \right]$$

(d) none of the above

Correct: $\sum_{j=0}^{n-1} \left[\frac{4}{n} \right] \left[(2 + (4j/n) + (4/n))^5 \right]$



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

$$\frac{d}{dx} [2^x] = (2^x)(\ln 2)$$

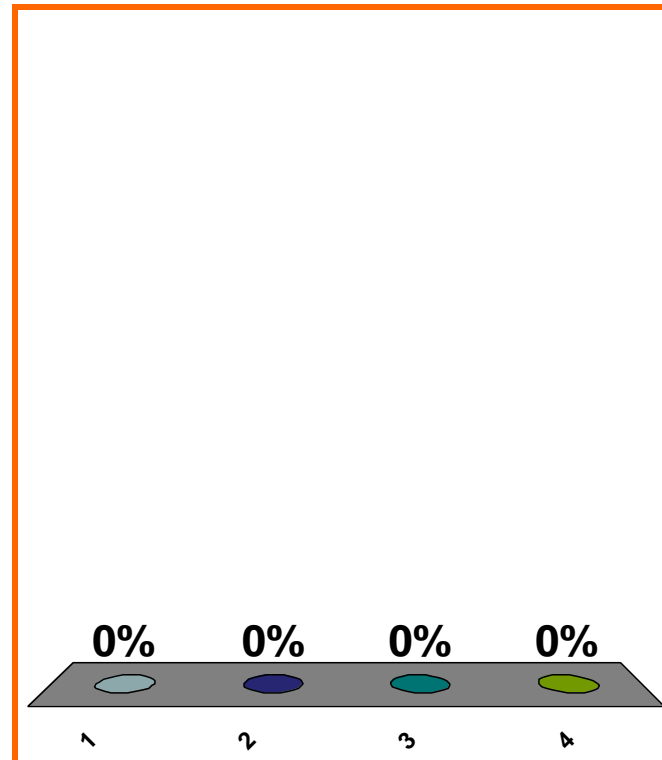
$$\int x^2 + 2^x dx = ??$$

(a) $\frac{x^3}{3} + \frac{2^{x+1}}{x+1} + C$

(b) $2x + (2^x)(\ln 2) + C$

(c) $\frac{x^3}{3} + \frac{2^x}{\ln 2} + C$

(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

$$\frac{d}{dx} [5^x] = (5^x)(\ln 5)$$

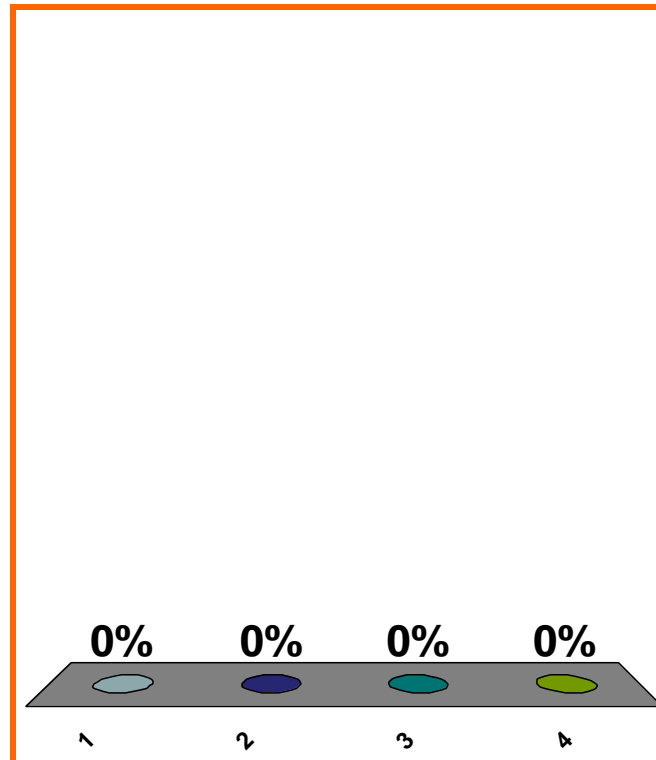
$$\int x^3 + 5^x dx = ??$$

$$(a) \frac{x^4}{4} + \frac{5^x}{\ln 5} + C$$

$$(b) 3x^2 + (5^x)(\ln 5) + C$$

$$(c) \frac{x^4}{4} + \frac{5^{x+1}}{x+1} + C$$

(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

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Topic 0570

0 pts

22

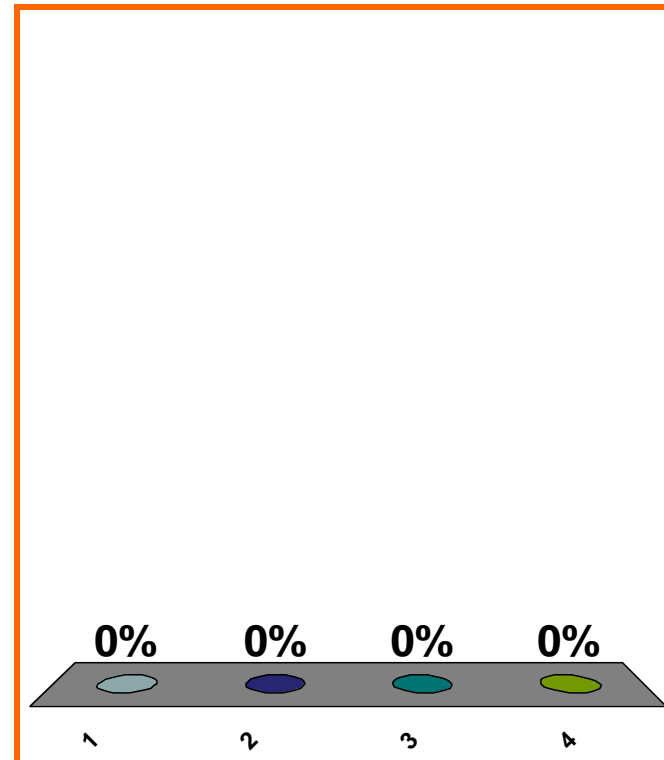
line's slope = 8
goes through (2, 7)
equation?

(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

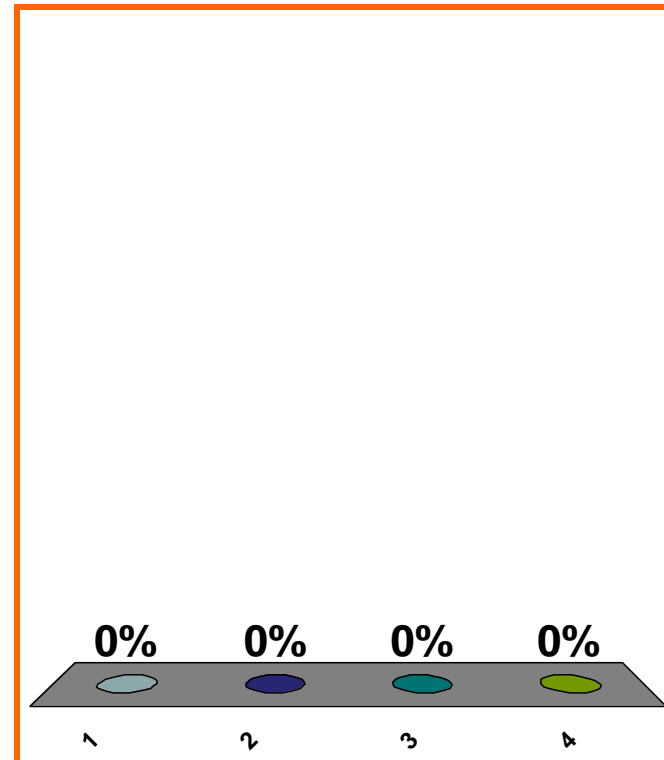
line's slope = 8
goes through (2, 7)
equation?

(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

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

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

“linearization” of $f(x)$ at $x = 2$?

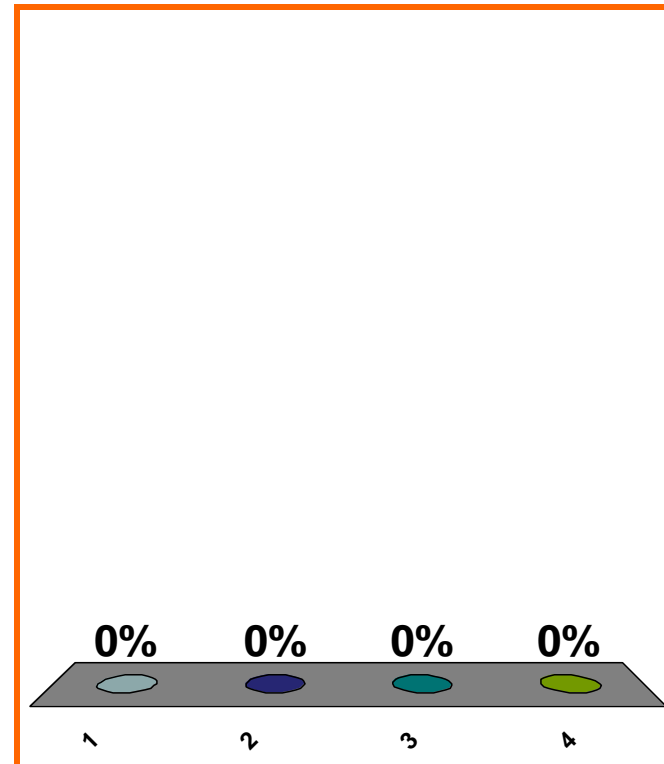
(a) 8

(b) 7

(c) $8(x - 2)$

(d) none of the above

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



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

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

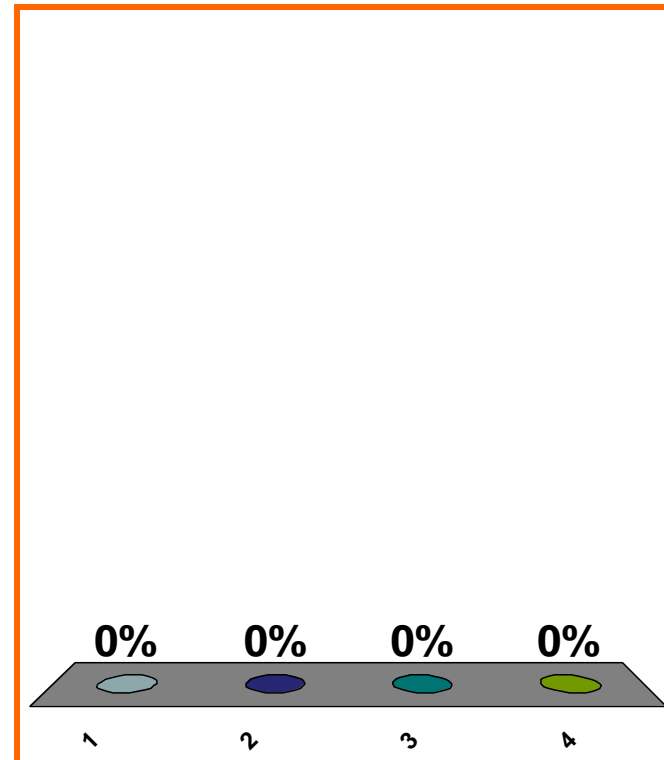
Linear approx. to $f(x)$
at $x = 5$?

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

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

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

(d) none of the above



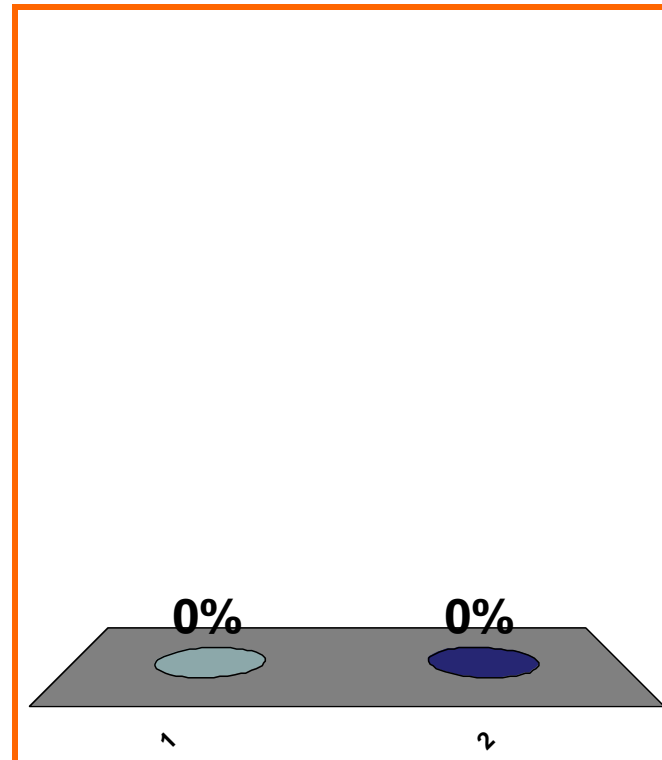
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

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
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

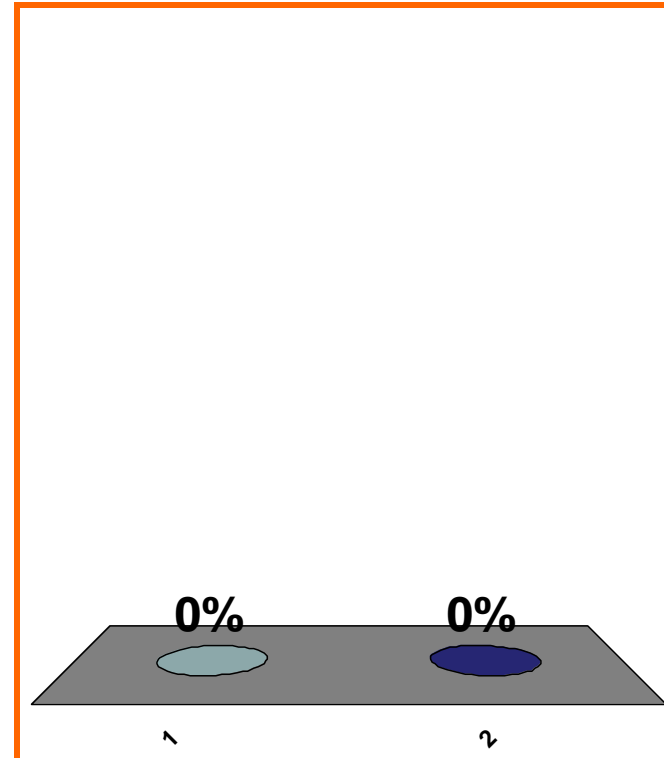
27

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

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

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

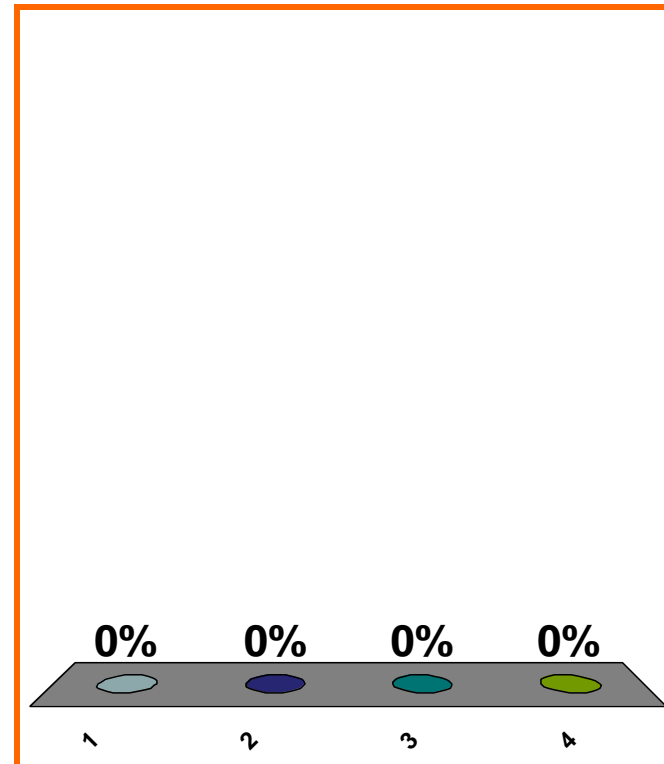
“linearization” of $f(x)$ at $x = 2$?

(a) $8(x - 2)$

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

(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

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

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

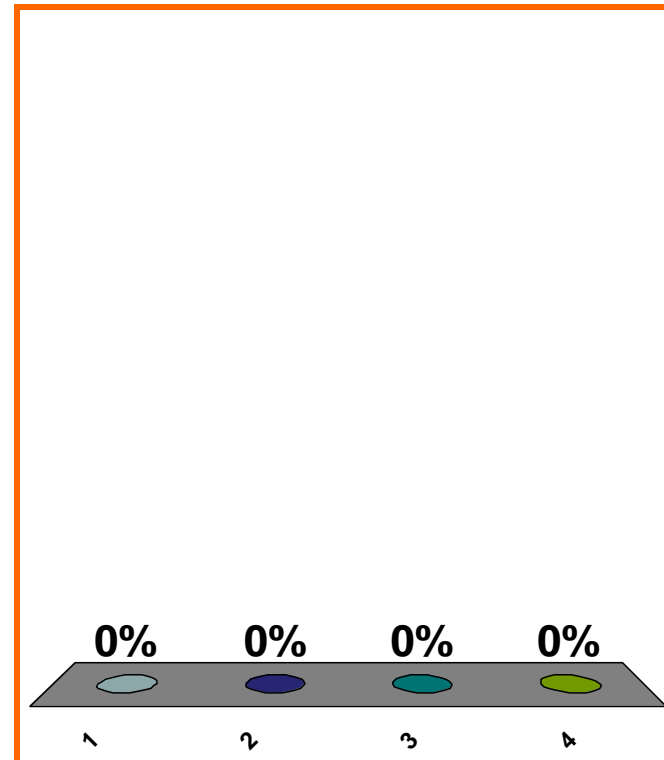
“linearization” of $f(x)$ at $x = 2$?

(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

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

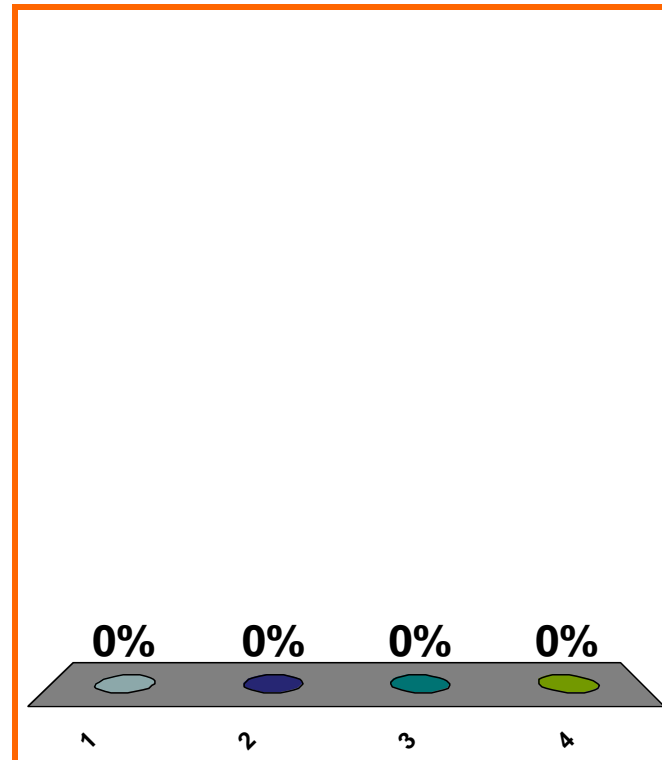
Linear approx. to $f(x)$
at $x = 7$?

(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

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

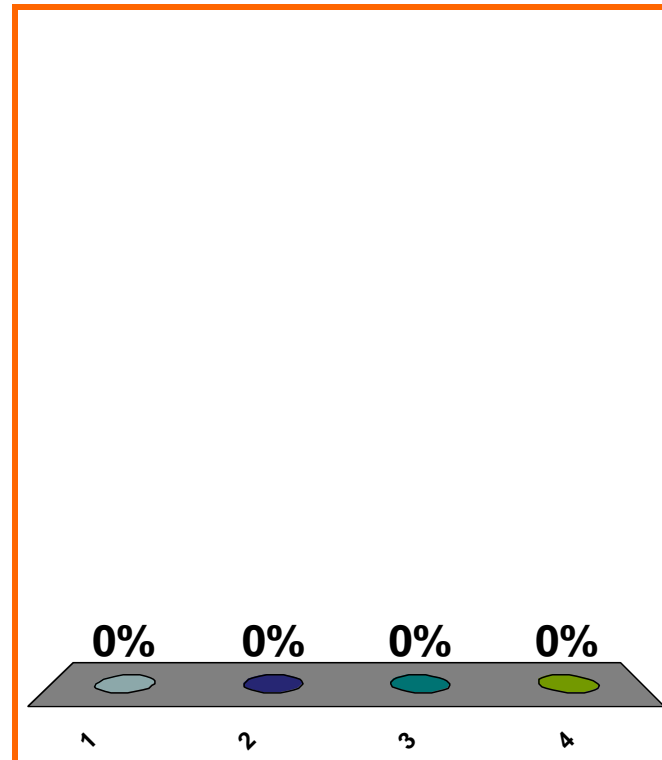
Linear approx. to $f(x)$
at $x = 7$?

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

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

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

(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

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

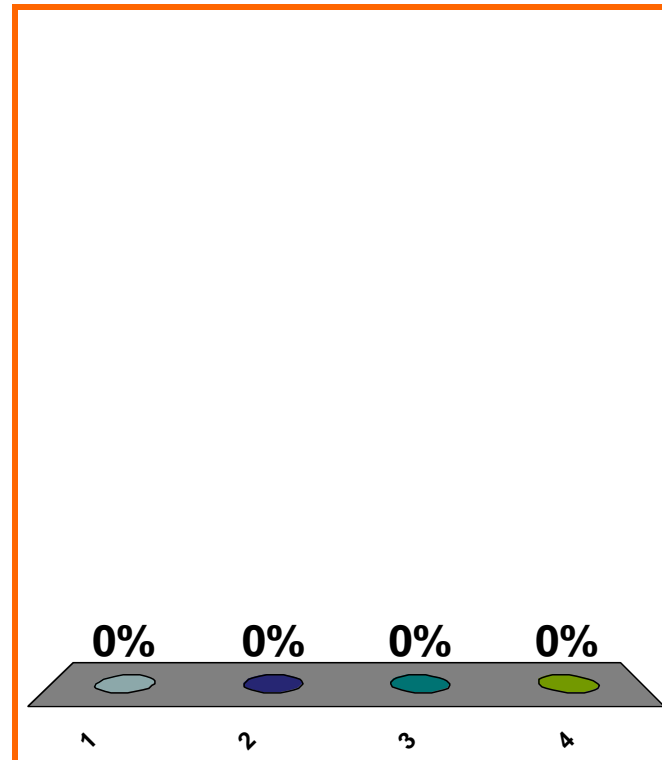
Linear approx. to $f(x)$
at $x = 5$?

(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

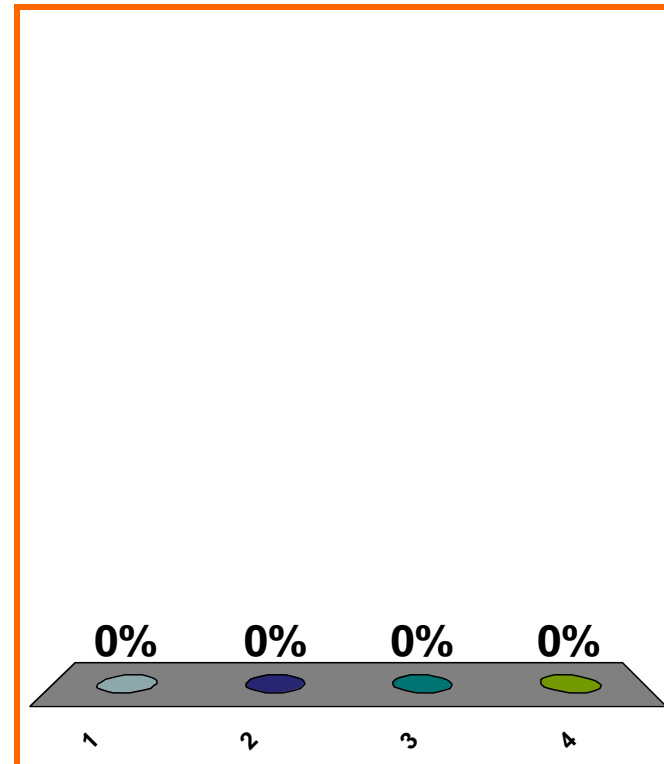
$g(2) = -3, \quad g'(2) = 5$
Linear approx. to $g(x)$
at $x = 2$?

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

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

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

(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

0 of 5

Topic 0540

0 pts

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

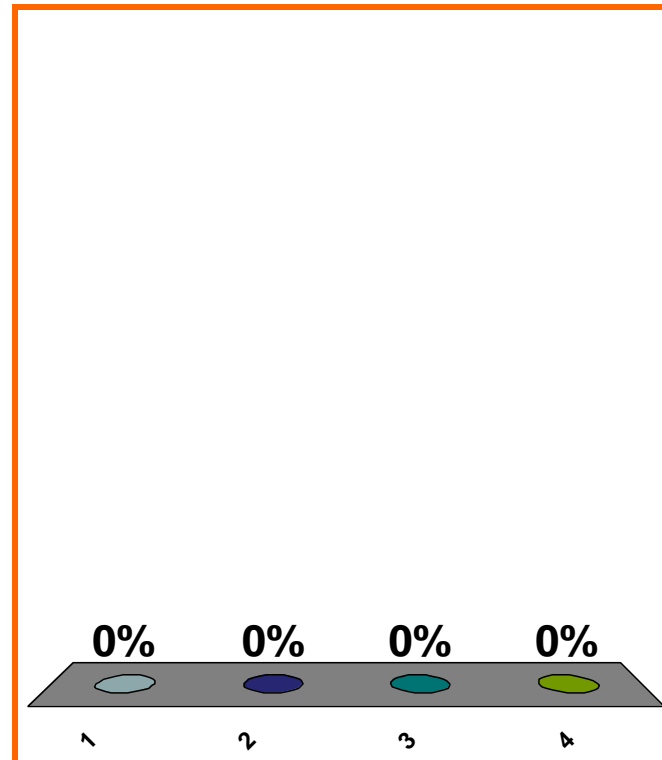
Linear approx. to $g(x)$
at $x = 9$?

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

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

(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

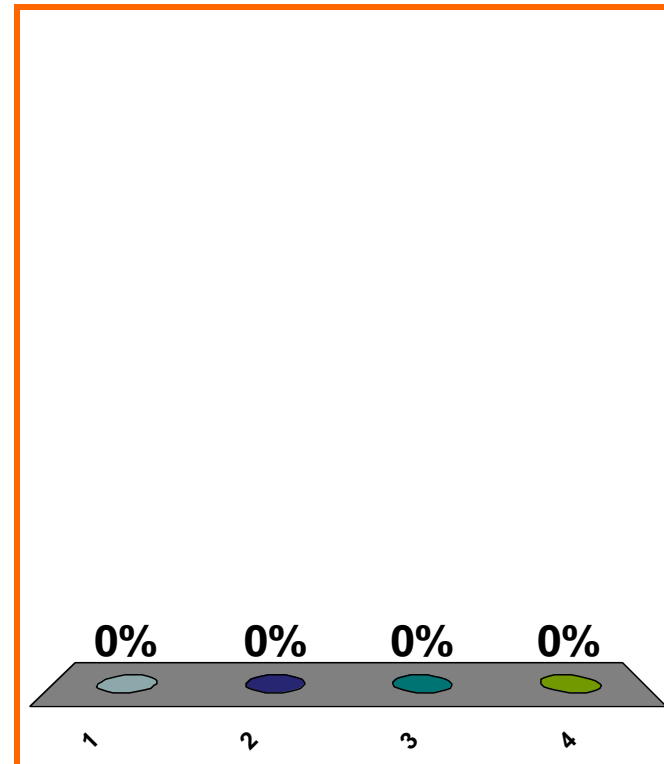
$f(5) = -2, \quad f'(5) = 23$
Linear approx. to $f(x)$
at $x = 5$?

(a) $23 - 2(x - 5)$

(b) $5x^2 + 23x - 2$

(c) $-2 + 23(x - 5)$

(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

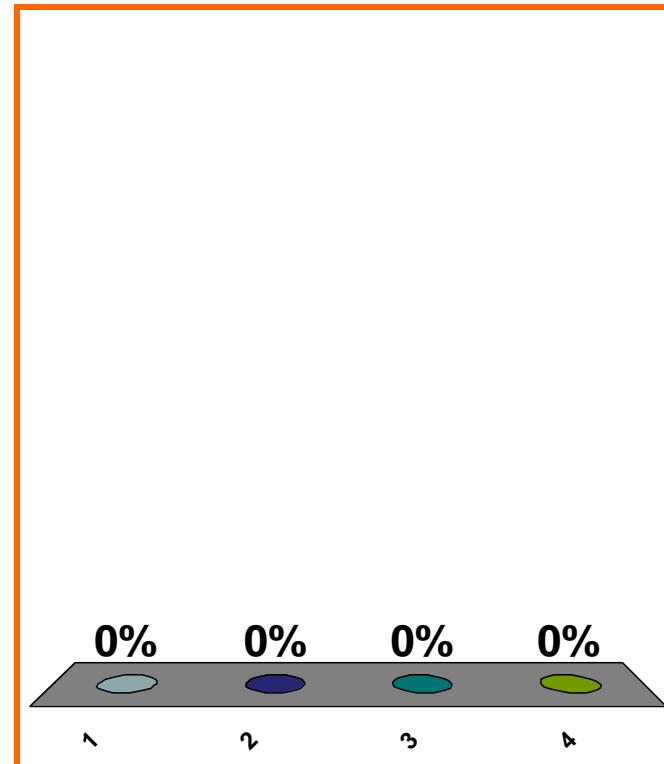
$g(9) = 4, \quad g'(9) = -8$
Linear approx. to $g(x)$
at $x = 9$?

(a) $-8 + 4(x - 9)$

(b) $4 - 8(x - 9)$

(c) $9x^2 + 4x - 8$

(d) none of the above



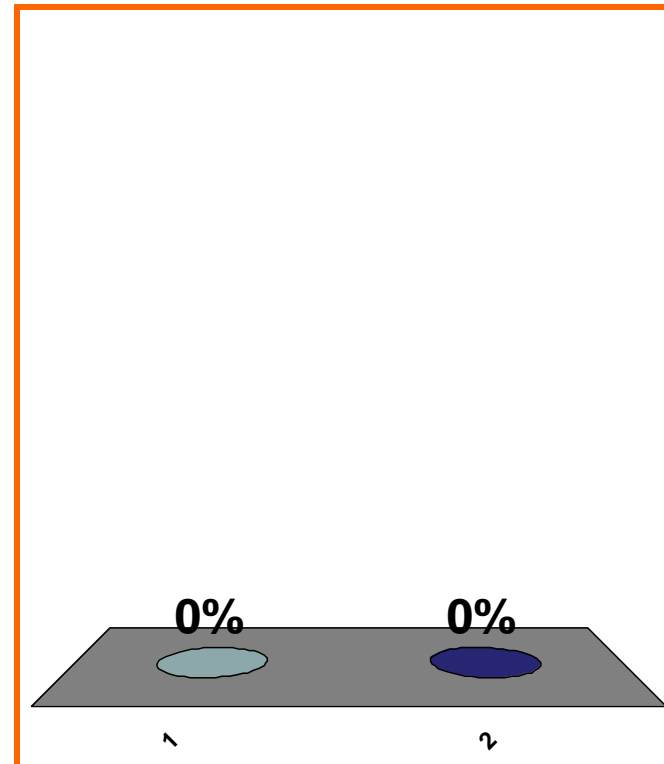
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

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

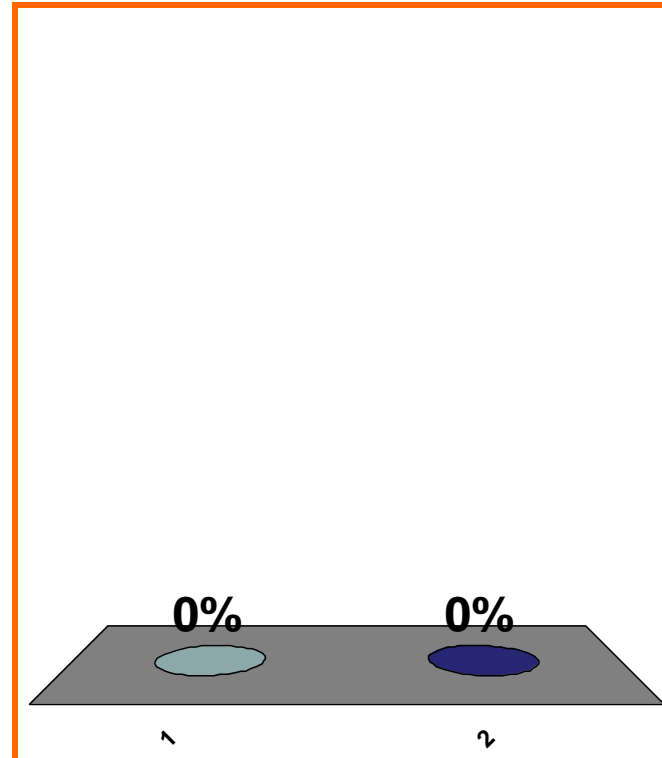
T or F:

f incr. on $(2, 3)$

$\Rightarrow f' \geq 0$ on $(2, 3)$

(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

SAVE THE
SESSION
DATA

RETURN TO
PRESENTATION