

Calculus

M 15 April 2013

RESET THE
SESSION

SET THE
PARTICIPANT
LIST

PLUG IN THE
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Boxed answers agree with
TurningPoint answers

Points agree with
TurningPoint points

Points total to 100

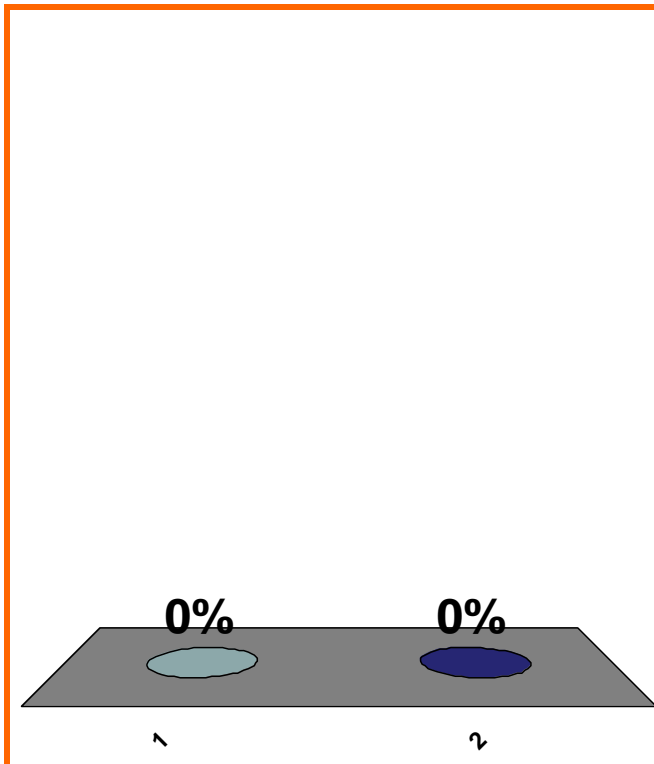
Topics covered are in bounds

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										

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arithmetic

0 pts

5

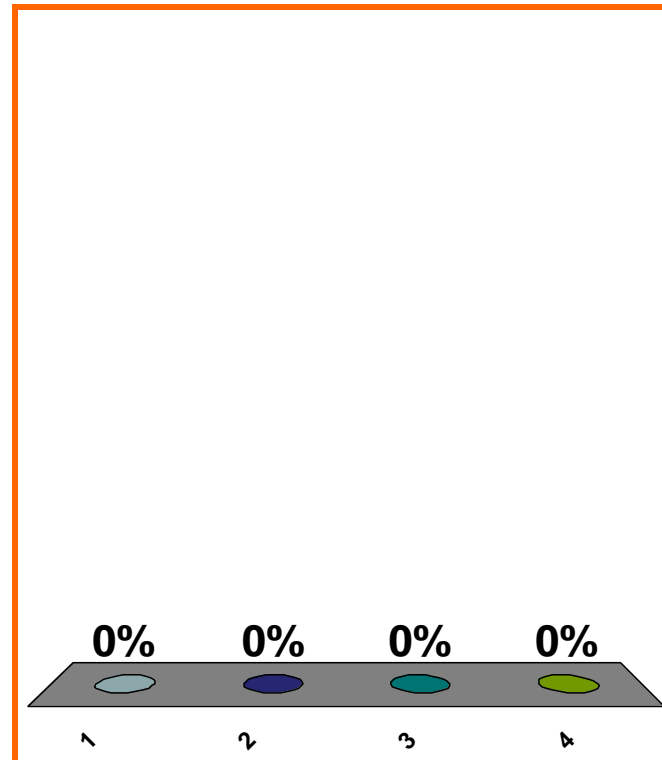
$$\frac{d}{dx} \left[\int_0^x (5t^3 + 2t - 1) dt \right]$$

(a) $\frac{5x^3}{3} + x^2 - x$

(b) $5x^3 + 2x - 1$

(c) $5t^3 + 2t - 1$

(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

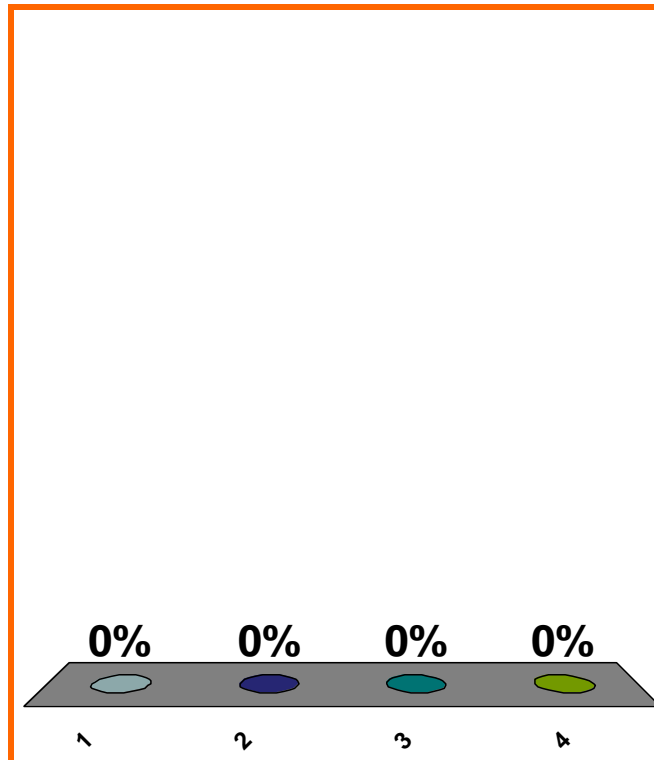
$$\Delta \left[\sum_{j=1}^n (5j^3 + 2j - 1) \right]$$

(a) $5n^3 + 2n - 1$

(b) $5(n + 1)^3 + 2(n + 1) - 1$

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

(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

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Topic 0070

20 pts

7

$$F'(t) = e^{t^2}$$

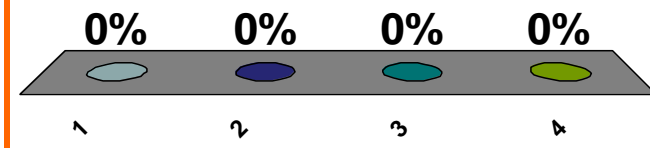
$$\frac{d}{dx} \left[\int_{x^2}^{x^5} e^{t^2} dt \right]$$

(a) $\frac{d}{dx} \left[(F(x^5)) - (F(x^2)) \right]$

(b) $\frac{d}{dx} \left[(F(x))^5 - (F(x))^2 \right]$

(c) $\frac{d}{dx} \left[(F(x^5))(5x^4) - (F(x^2))(2x) \right]$

(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 0610

20 pts

8

$$F'(t) = e^{t^2}$$

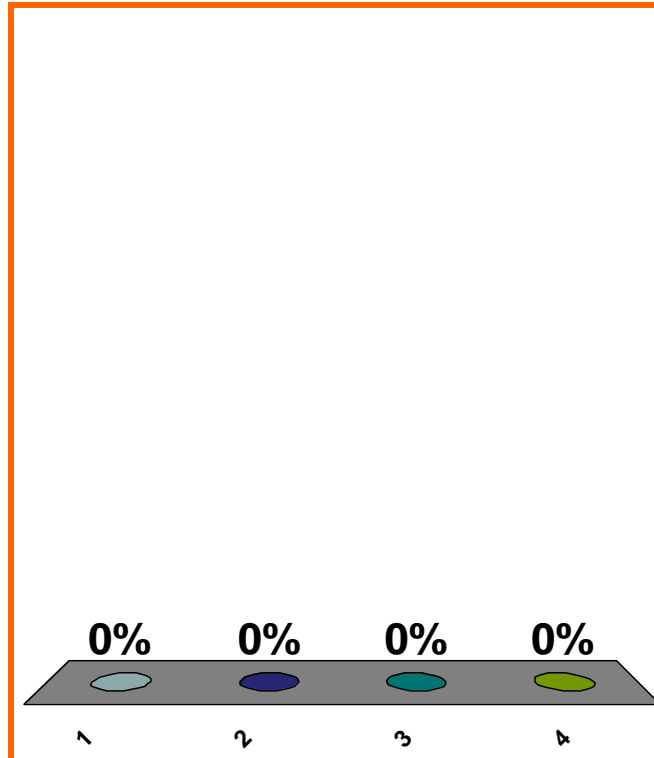
$$\frac{d}{dx} [(F(x^5)) - (F(x^2))]$$

(a) $(F(x^5))(5x^4) - (F(x^2))(2x)$

(b) $(F'(x^5)) - (F'(x^2))$

(c) $(F'(x^5))(5x^4) - (F'(x^2))(2x)$

(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

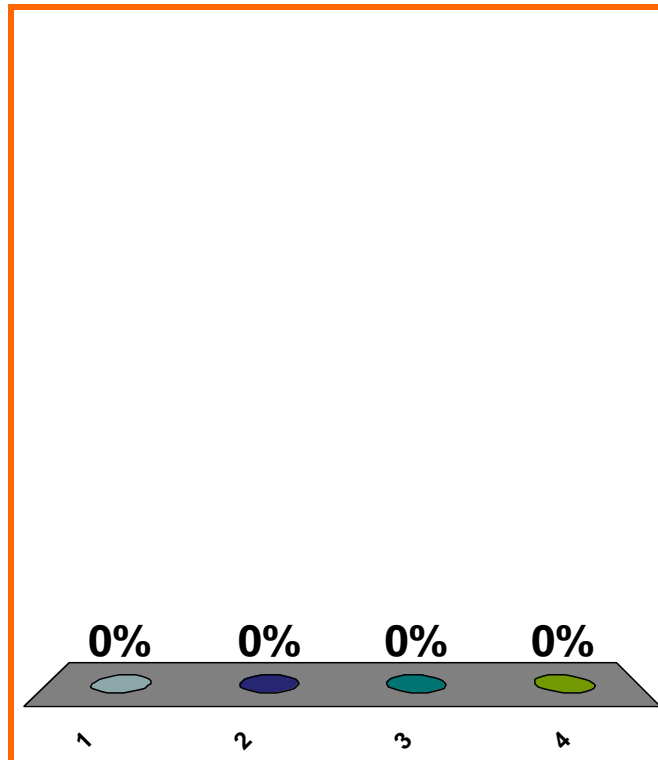
for $\int_1^4 e^x dx$

(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

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

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

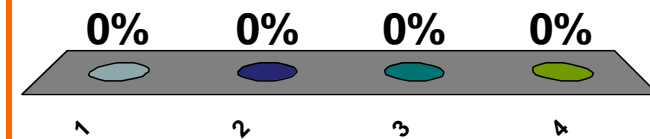
(a) $\frac{x^3}{3} + \frac{5^{x+1}}{x+1} + C$

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

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

(d) none of the above

Correct: $\frac{x^3}{3} + \frac{5^x}{\ln 5} + C$



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

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Topic 0570

0 pts

13

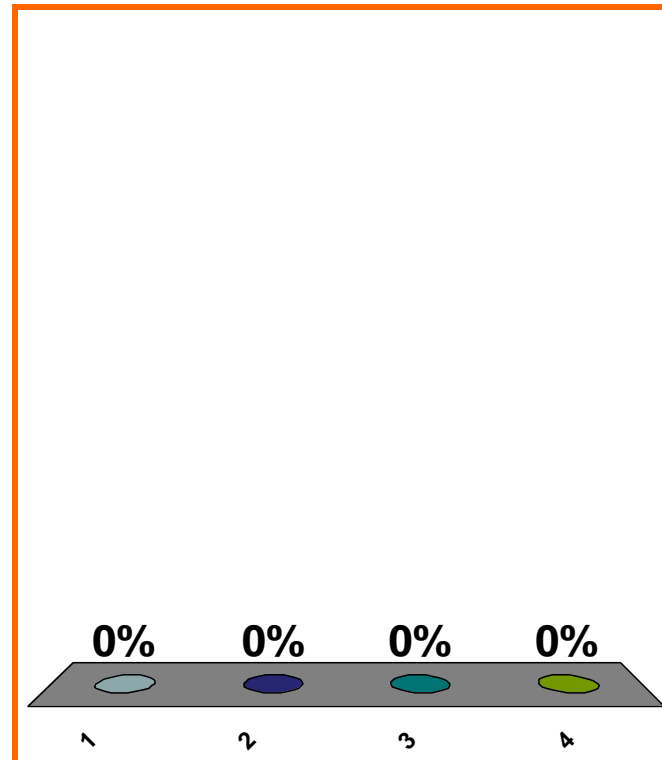
$$(a) \sum_{j=1}^n \left[\frac{3}{n} \right] \left[e^{1+(3j/n)} \right]$$

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

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

(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

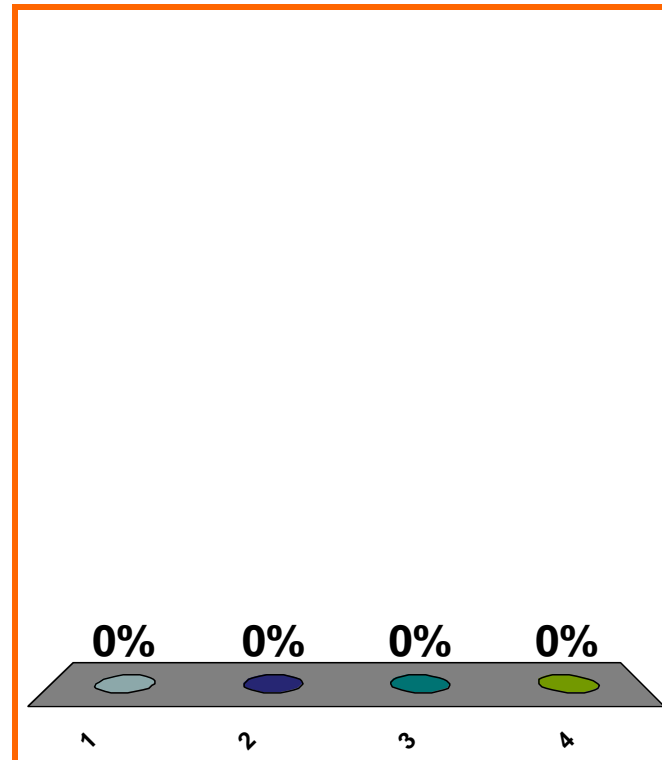
$$\int_1^3 (\sin \theta) d\theta = ??$$

(a) $[\cos \theta]_{\theta: \rightarrow 1}^{\theta: \rightarrow 3}$

(b) $(\cos \theta) + C$

(c) $[-\cos \theta]_{\theta: \rightarrow 1}^{\theta: \rightarrow 3}$

(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

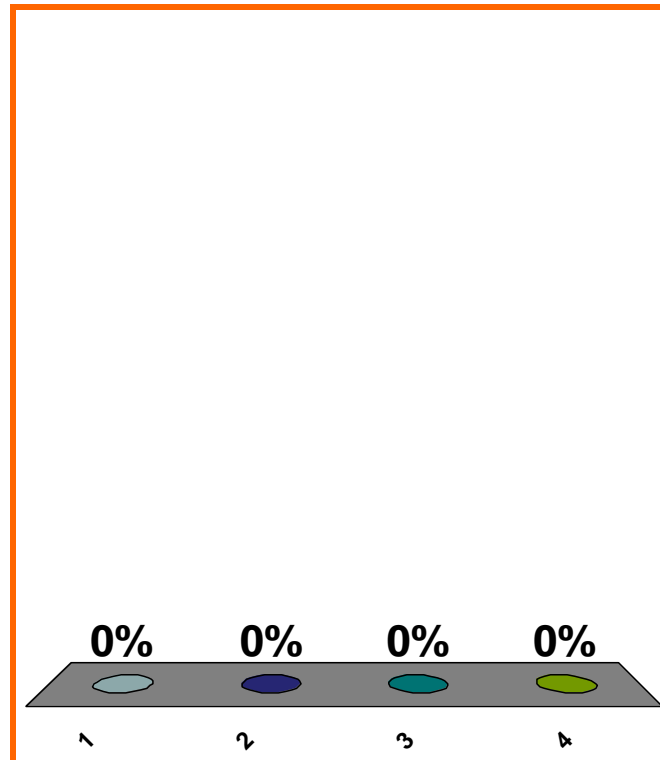
$$\frac{d}{dx} \left[\int_1^x \cos t \, dt \right]$$

(a) $\cos x$

(b) $(\sin 1) - (\sin x)$

(c) $-\cos x$

(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	31	32	33	34	35	36	37	38	39	40

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Topic 0610

0 pts

16

degree in x of

$$\int_0^x (5t^3 + 2t - 1) dt$$

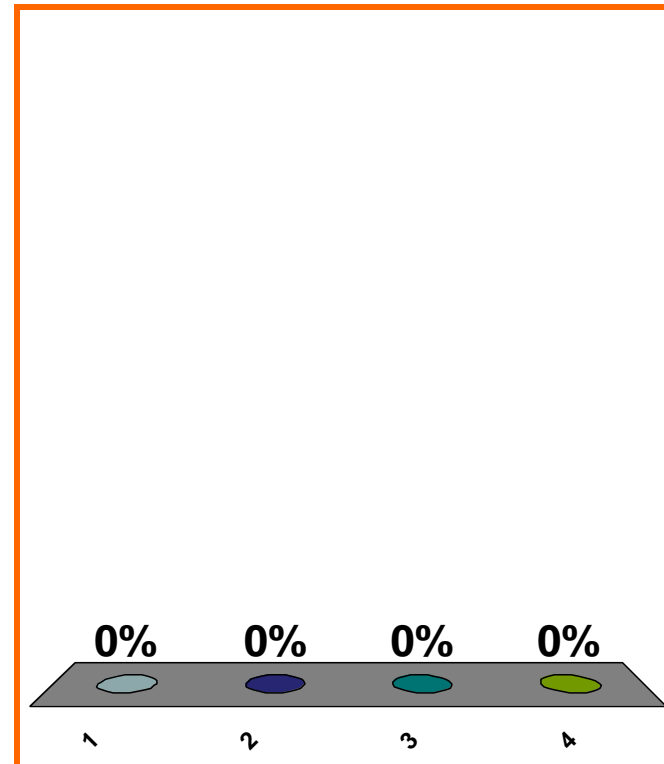
(a) 1

(b) 2

(c) 3

(d) none of the above

Correct answer: 4



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

degree in n of

$$\sum_{j=1}^n (5j^3 + 2j - 1)$$

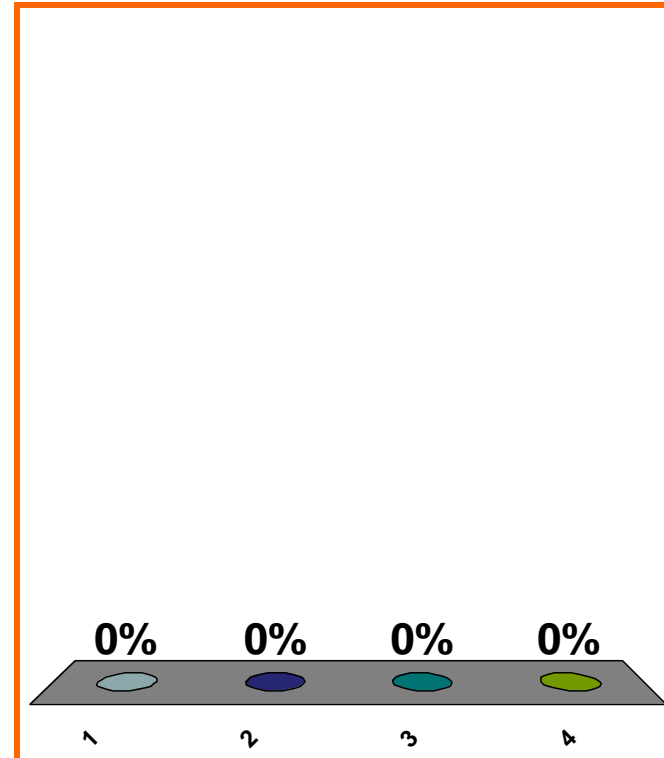
(a) 1

(b) 2

(c) 3

(d) none of the above

Correct answer: 4



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

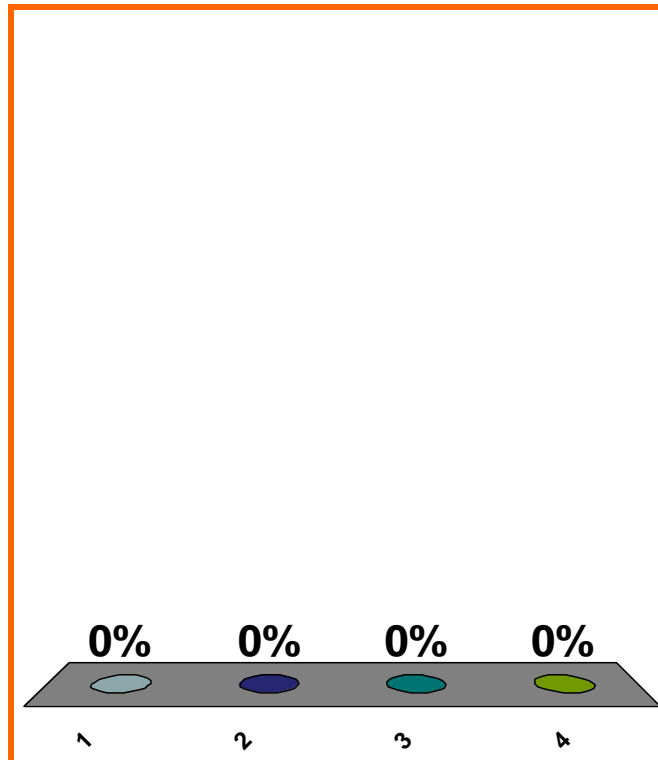
$$\frac{d}{dx} \left[\int_x^1 \cos t \, dt \right]$$

(a) $\cos x$

(b) $-\cos x$

(c) $(\sin 1) - (\sin x)$

(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	31	32	33	34	35	36	37	38	39	40

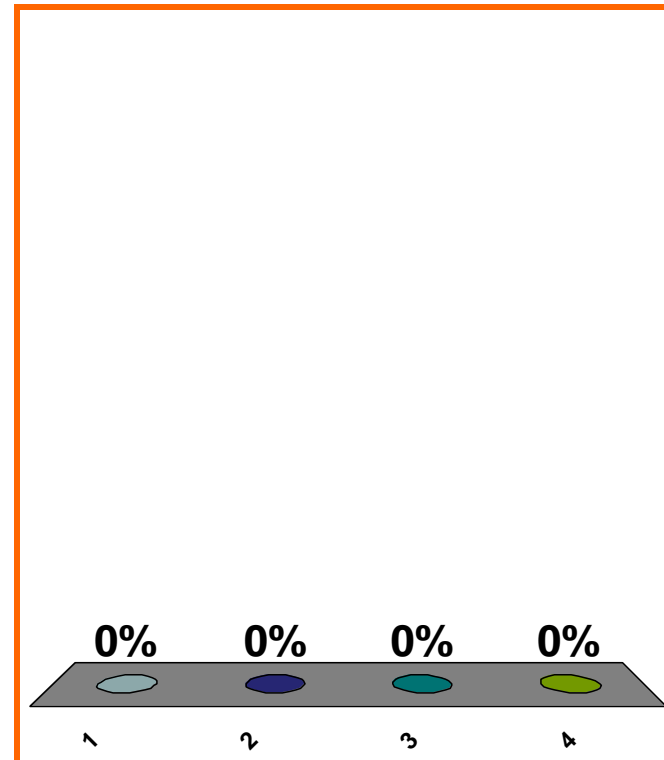
$$\int \sin(2x) dx = ??$$

(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

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

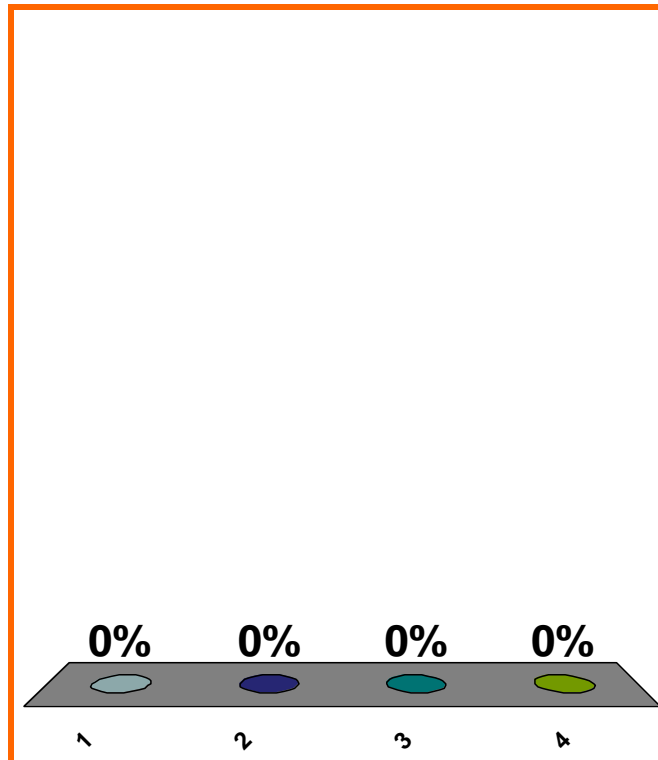
n th left endpt Riem. sum

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

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Topic 0590

0 pts

21

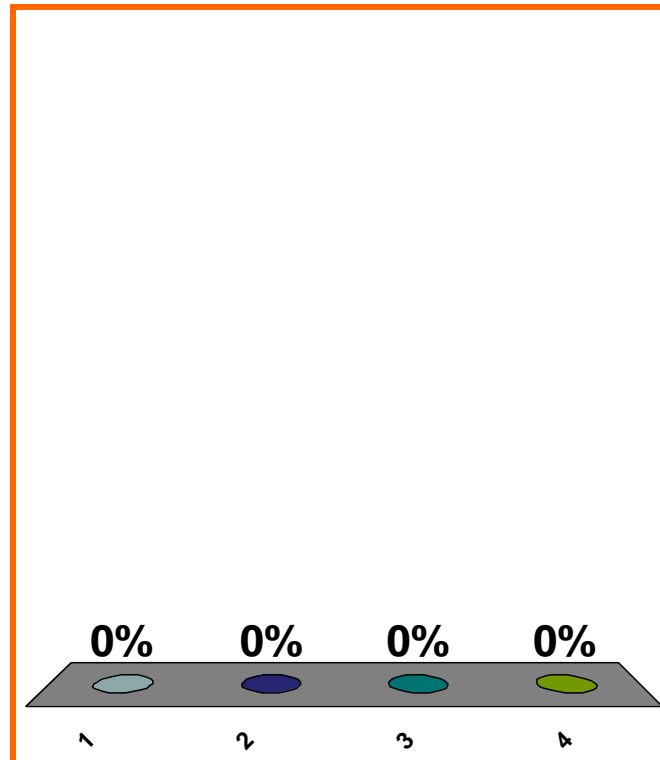
n th rt endpt Riem. sum
for $\int_1^2 e^x dx$

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

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

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

(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

n th left endpt Riem. sum

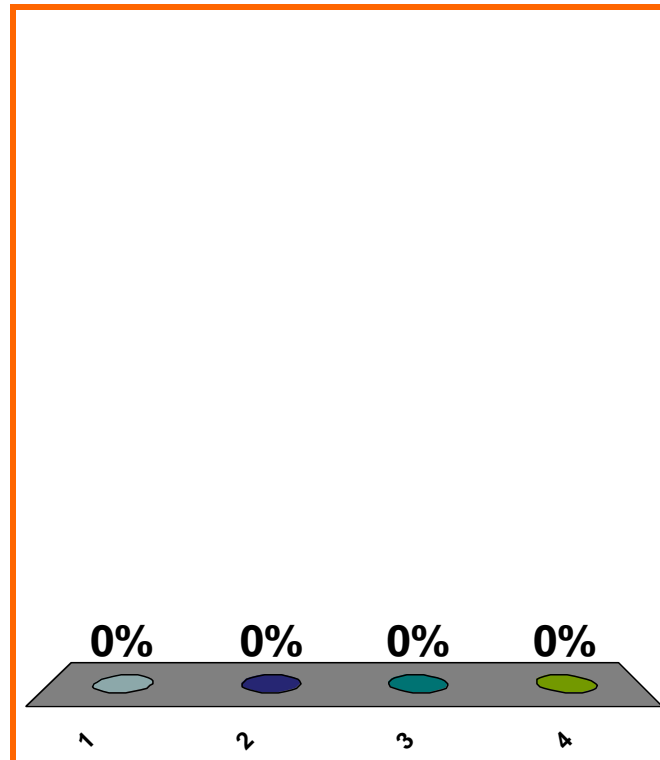
(a) $\sum_{j=1}^n \left[\frac{1}{n} \right] \left[e^{1+(j/n)} \right]$

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

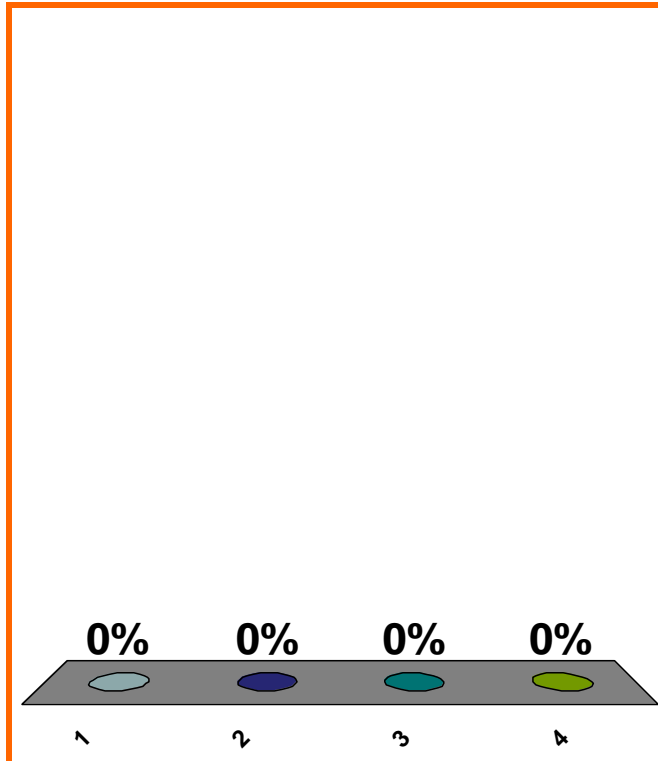
for $\int_1^2 e^x dx$

(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

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

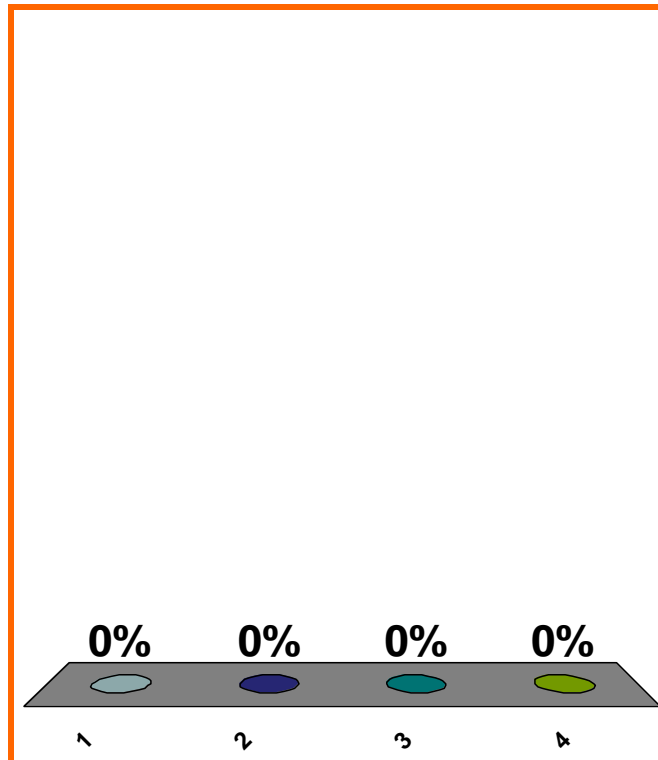
n th left endpt Riem. sum

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

25

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

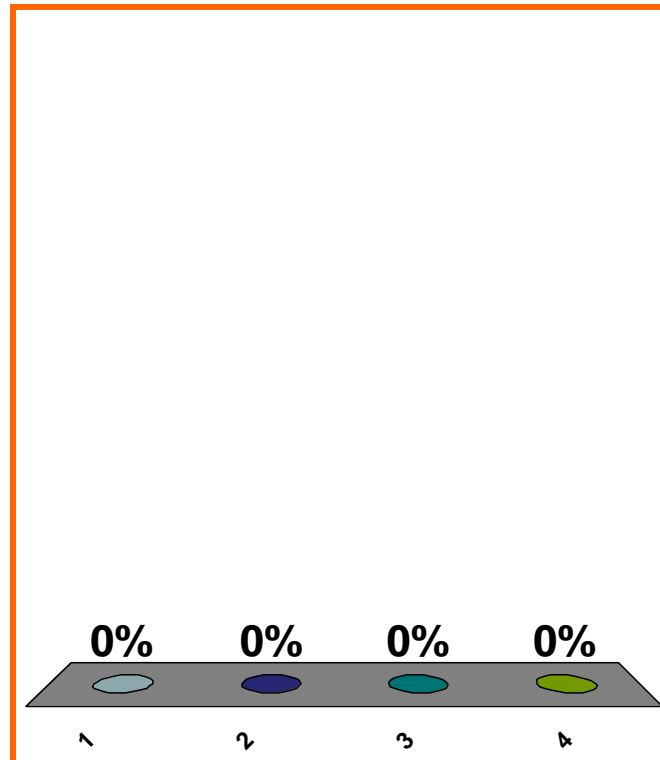
n th right endpt Riem. sum

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

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

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

(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

26

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

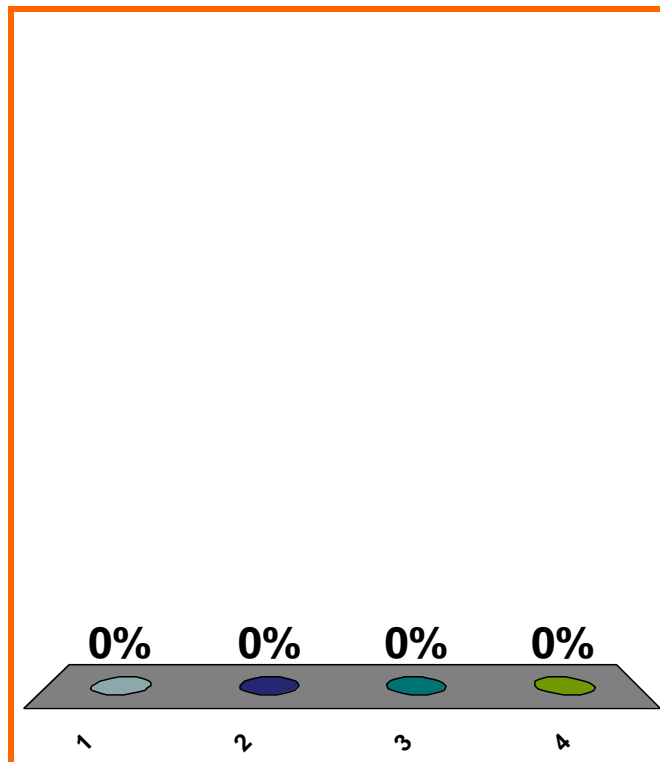
n th left endpt Riem. sum

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

Topic 0590

0 pts

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

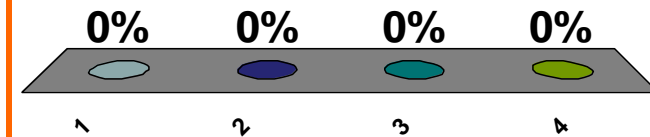
n th midpt Riem. sum

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

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

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

(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

28

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

n th right endpt Riem. sum

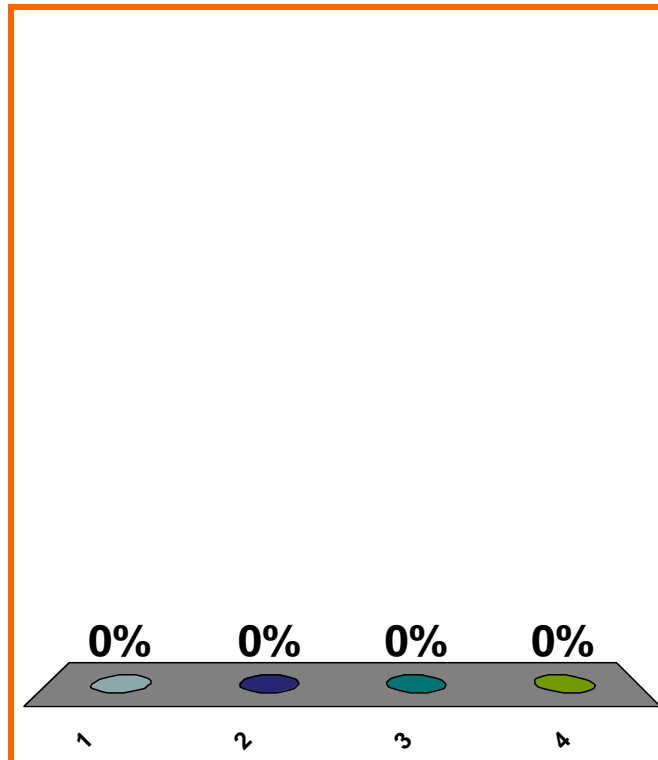
$$\text{for } \int_2^6 x^5 dx$$

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

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

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

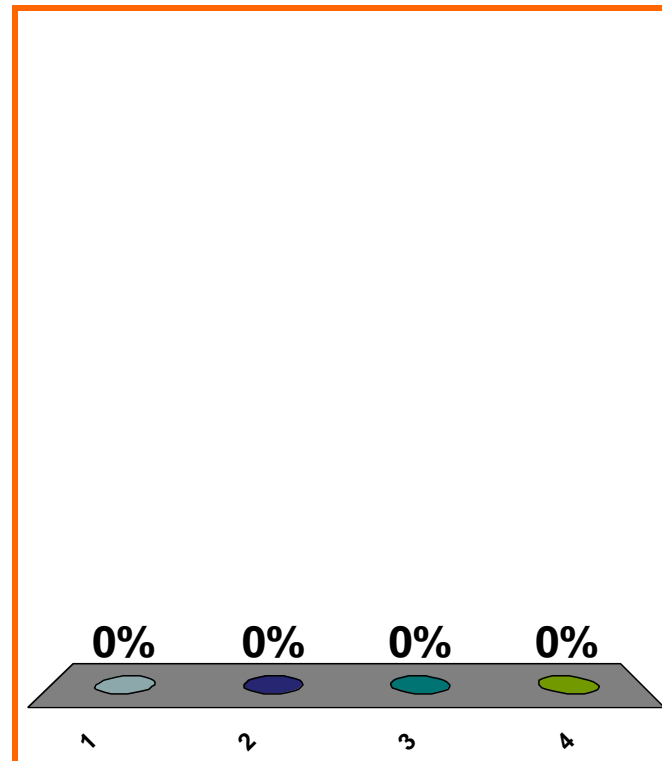
$$\int x^2 + 2^x dx = ??$$

(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

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

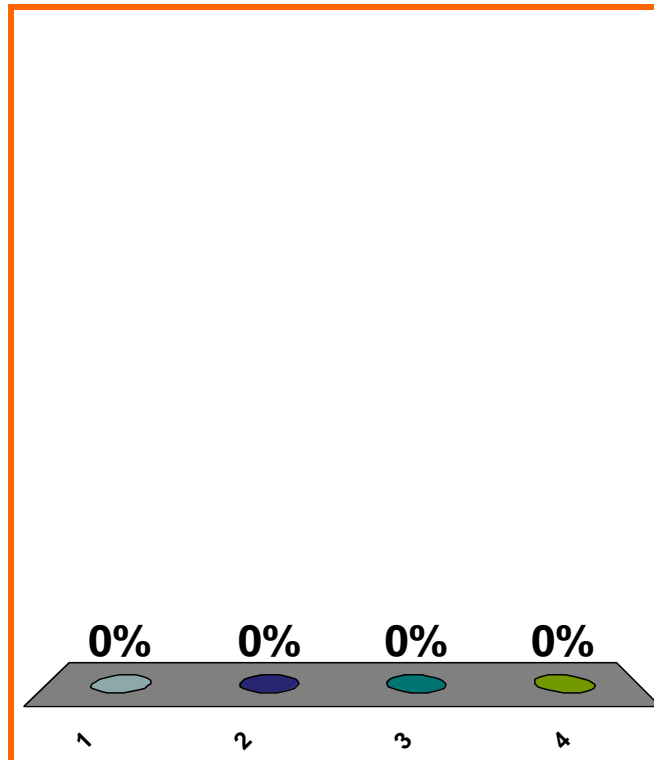
$$\int x^3 + 5^x dx = ??$$

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

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

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

(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

31

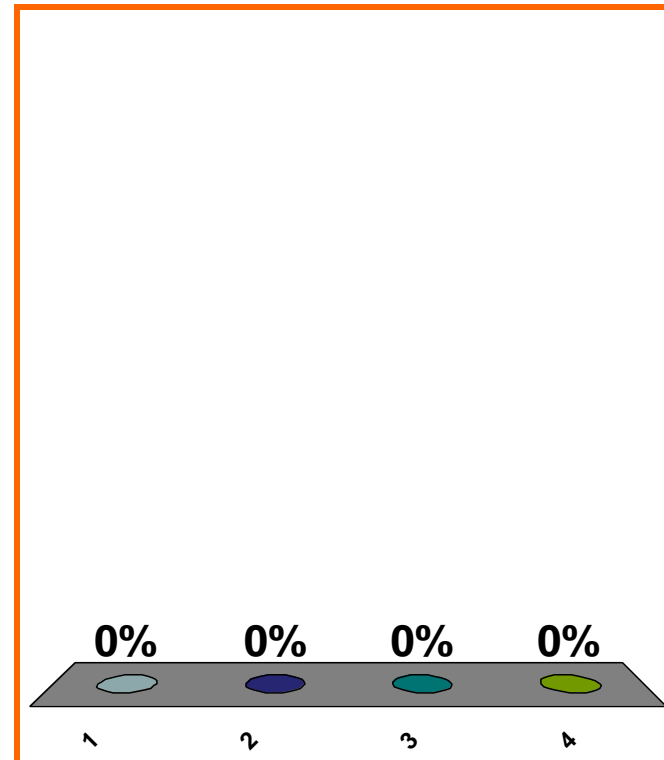
line's slope = 8
goes through (2, 7)
equation?

(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

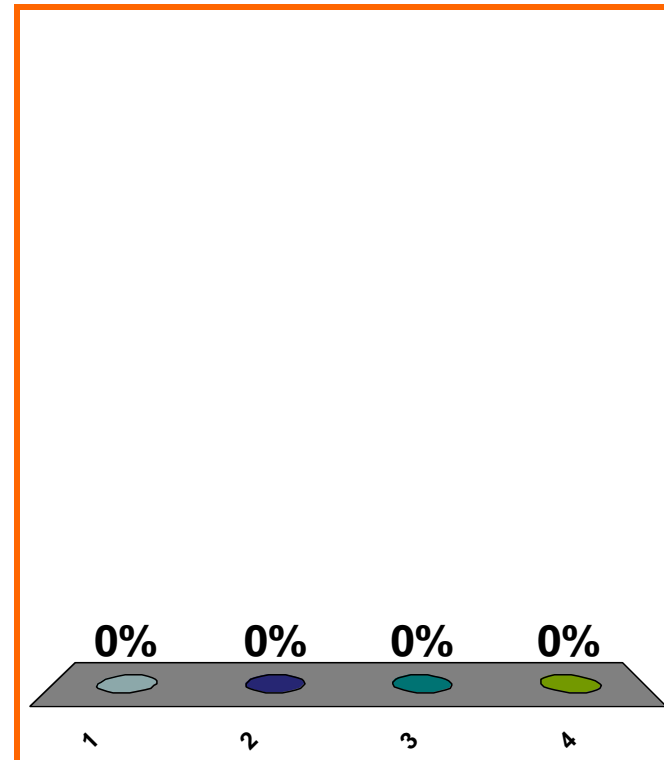
line's slope = 8
goes through (2, 7)
equation?

(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 $x = 2$?

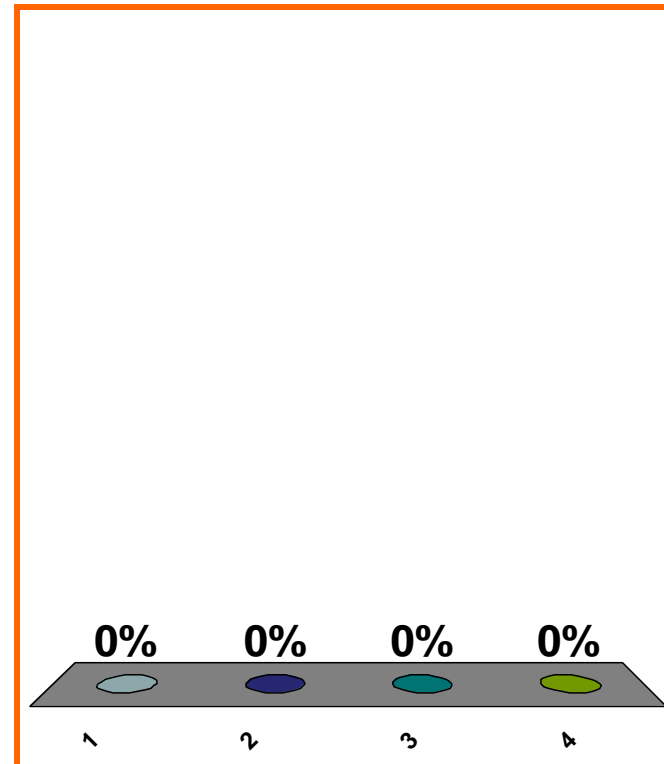
(a) 8

(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

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

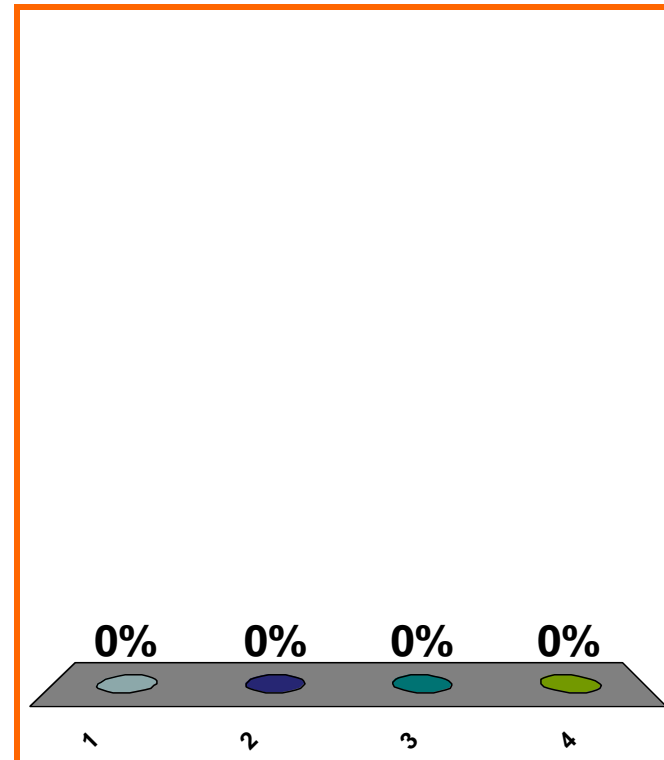
Linear approx. to $f(x)$
at $x = 5$?

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

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

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

(d) none of the above



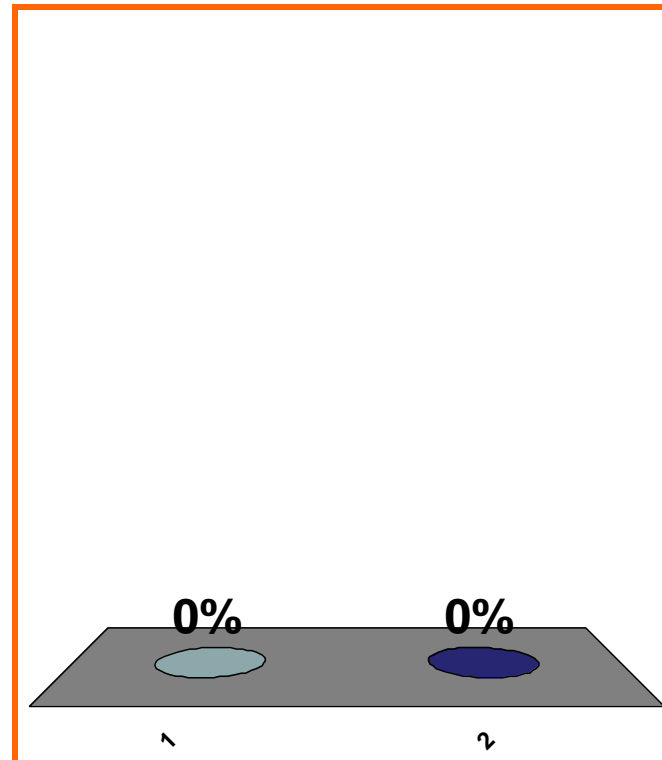
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

T or F:

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

(a) True

(b) False



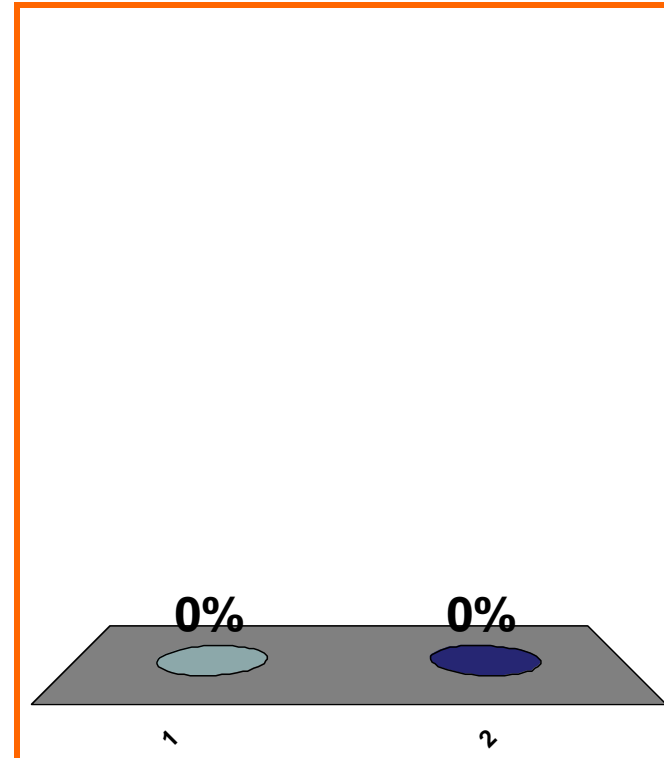
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

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 $(2, 7)$

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

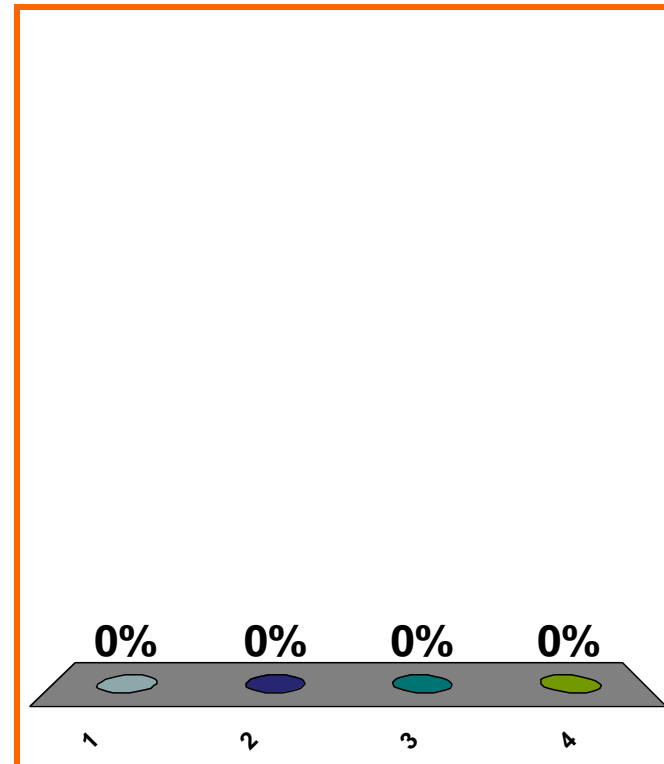
“linearization” of $f(x)$ at $x = 2$?

(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 $(2, 7)$

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

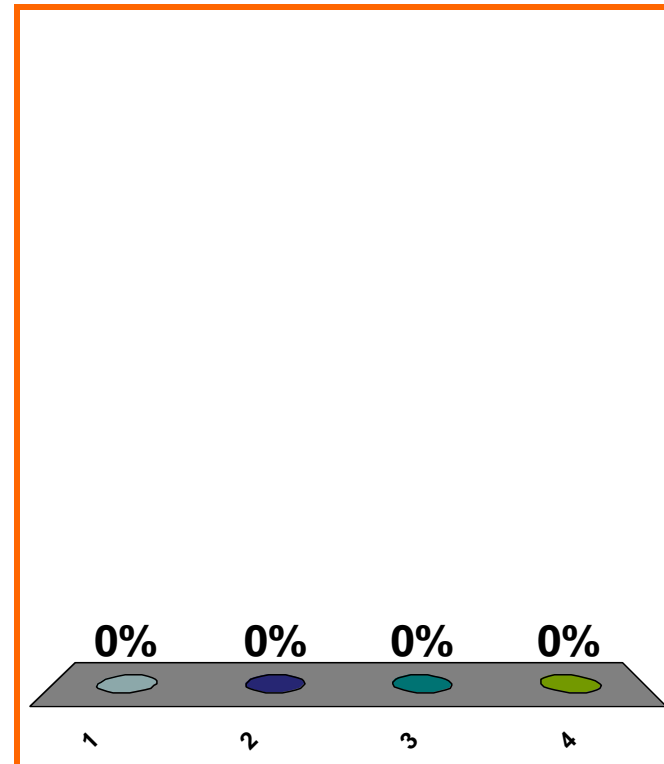
“linearization” of $f(x)$ at $x = 2$?

(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

0 of 5

Topic 0540

0 pts

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

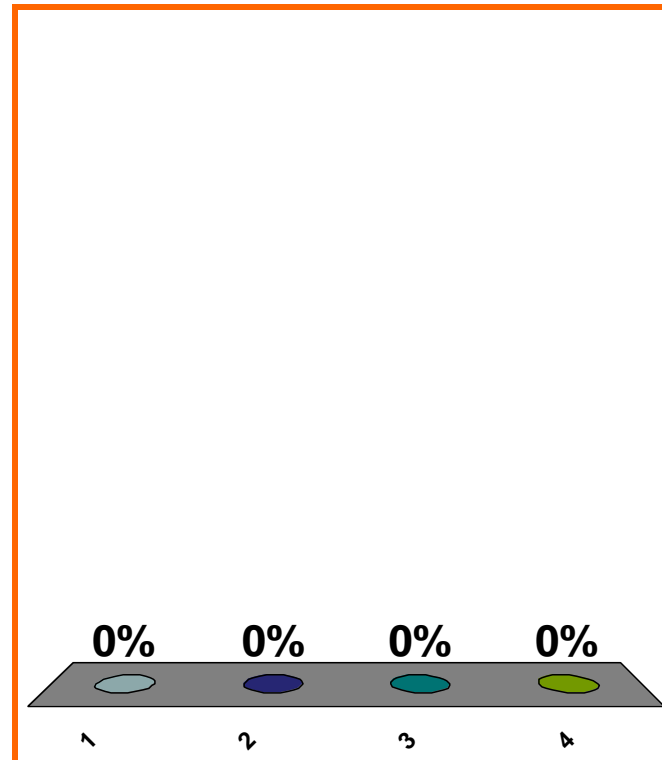
Linear approx. to $f(x)$
at $x = 7$?

(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

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

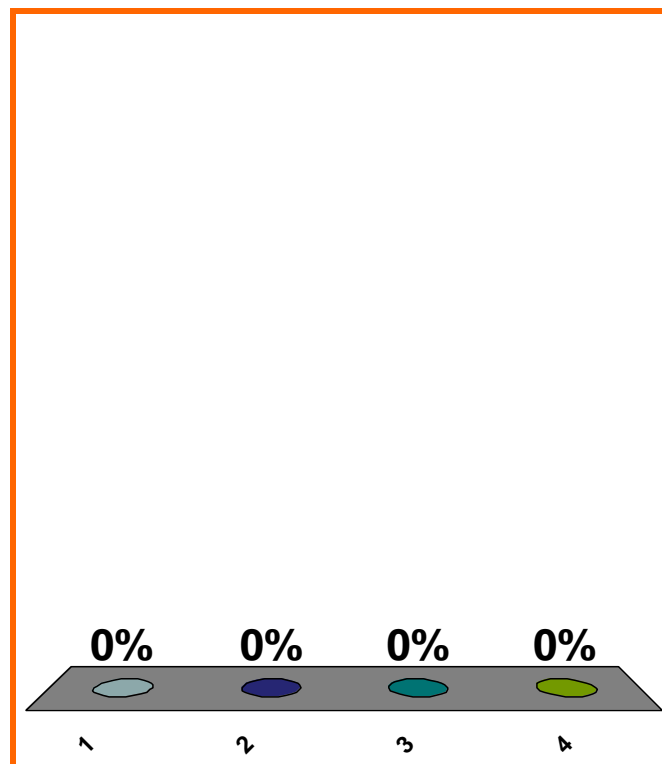
Linear approx. to $f(x)$
at $x = 7$?

(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

SAVE THE
SESSION
DATA

RETURN TO
PRESENTATION