

Calculus

W 11 April 2012

RESET THE
SESSION

SET THE
PARTICIPANT
LIST

PLUG IN THE
RECEIVER

New topics (see diary)

Topics covered are in bounds

Boxed answers agree with
TurningPoint answers

Points agree with
TurningPoint points

Points total to 100

Cover the look ahead

QUIZ
FOLLOWS

(a) $\pi \left(\sqrt{1 - x^2} \right)$

(b) $\pi \left(1 - x^2 \right) dx$

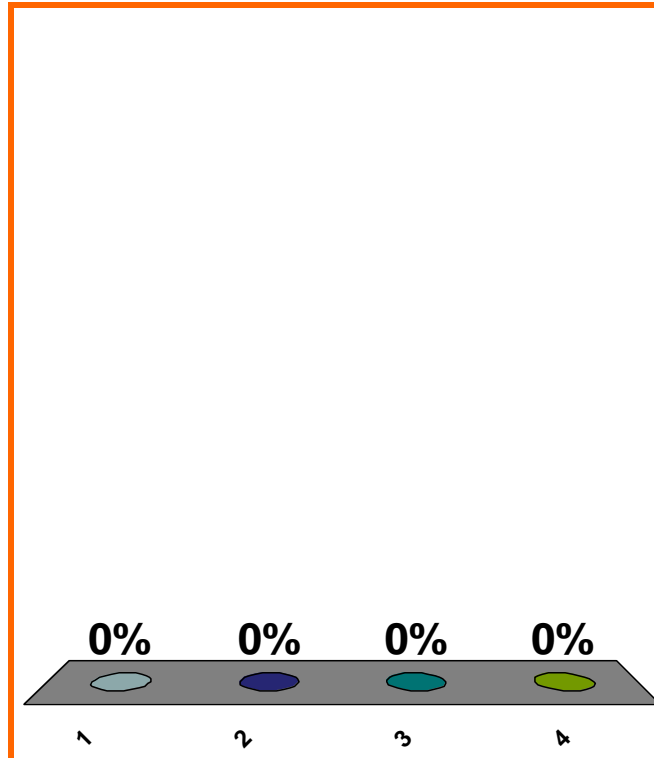
(c) $\pi \left(\sqrt{1 - x^2} \right) dx$

(d) none of the above

thickened disk vol. at x

$$y = \sqrt{1 - x^2}$$

about x -axis



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 0720

20 pts

5

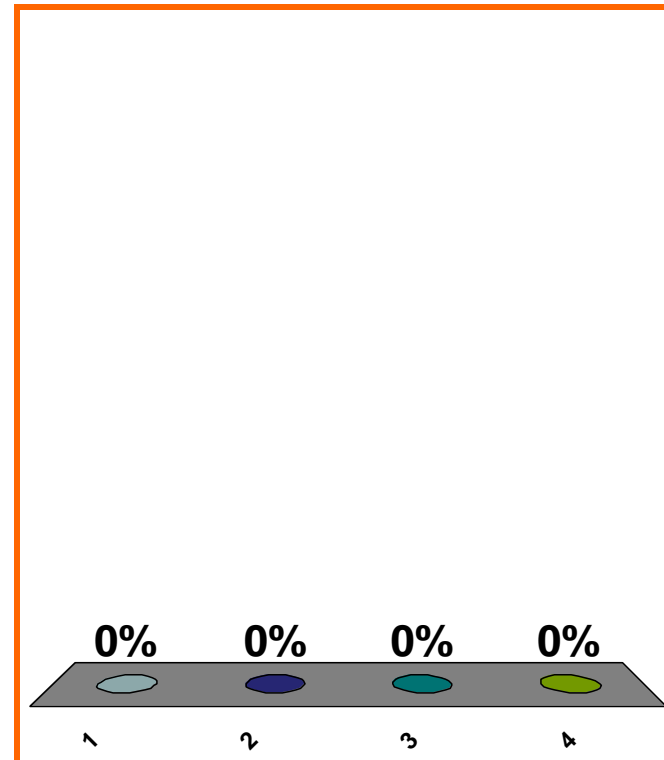
$$\frac{d}{dx} \left[\int_0^x (5t^3 + 2t - 1) dt \right]$$

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

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

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

(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

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Topic 0620

10 pts

6

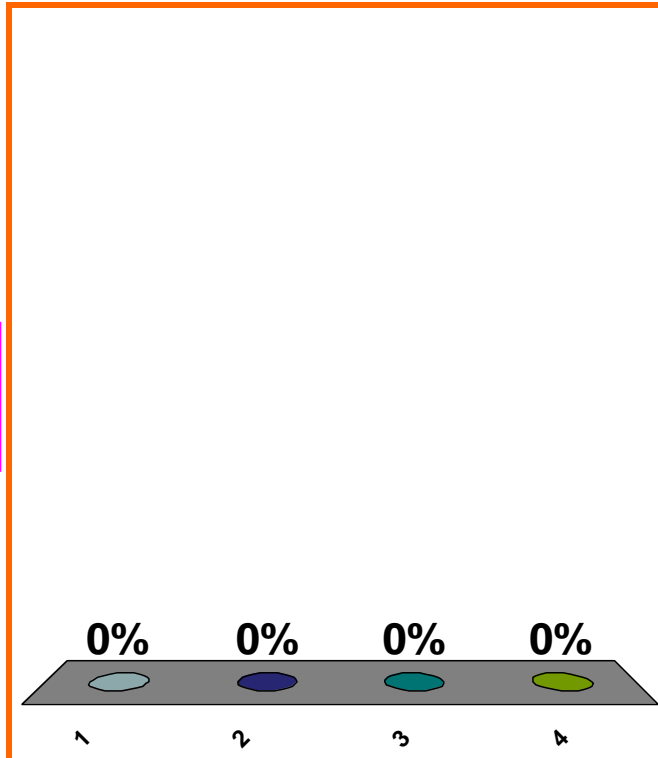
$$\Delta \left[\sum_{j=1}^n (5j^3 + 2j - 1) \right]$$

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

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

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

(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
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Topic 0070

10 pts

7

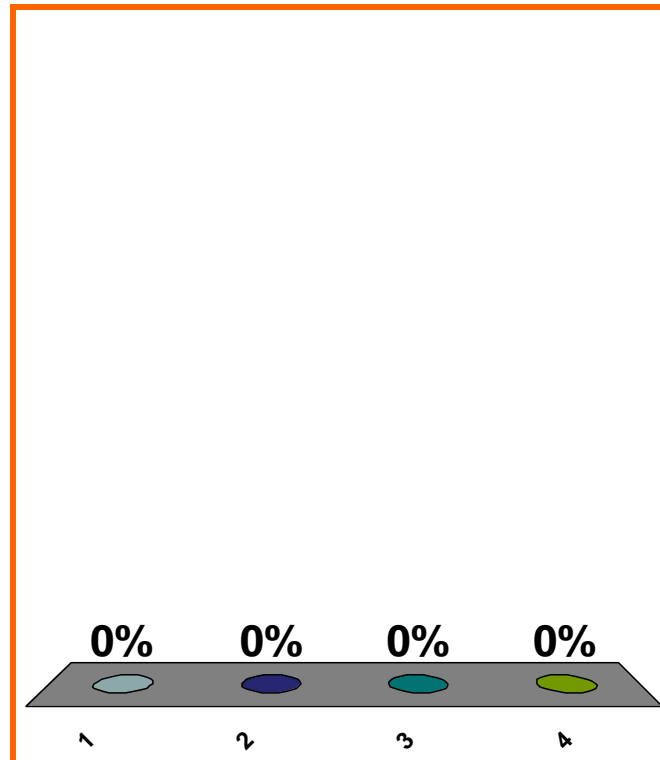
$$\frac{d}{dx} \left[\int_1^x \cos t \, dt \right]$$

(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
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Topic 0610

10 pts

8

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

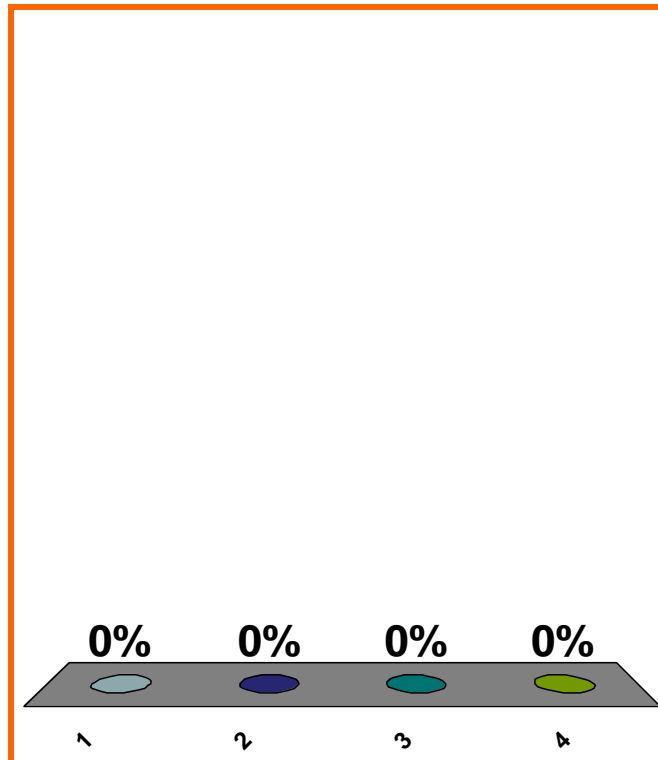
$$\frac{d}{dx} \left[\int_{x^2}^{x^5} e^{t^2} dt \right]$$

(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
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Topic 0620

10 pts

9

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

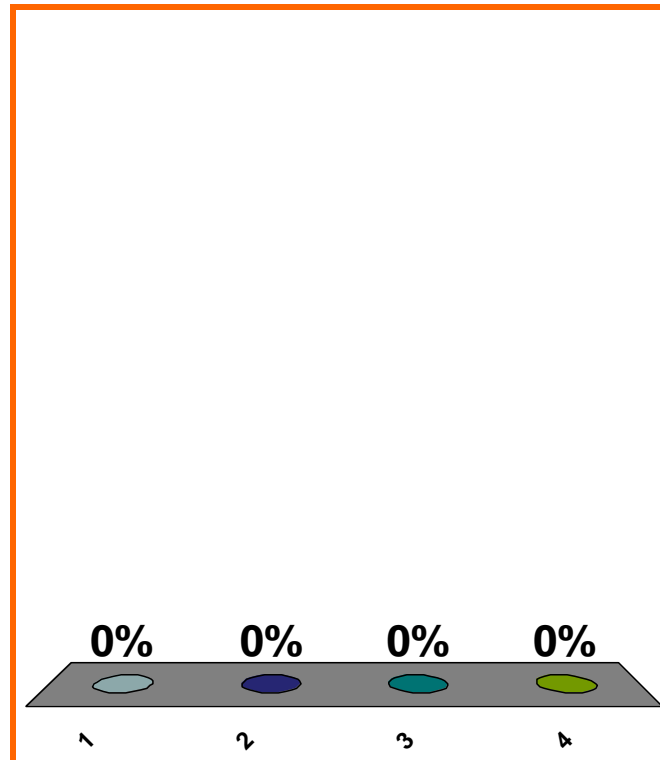
$$\frac{d}{dx} [(F(x^5)) - (F(x^2))]$$

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

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

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

(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

n th midpt Riem. sum

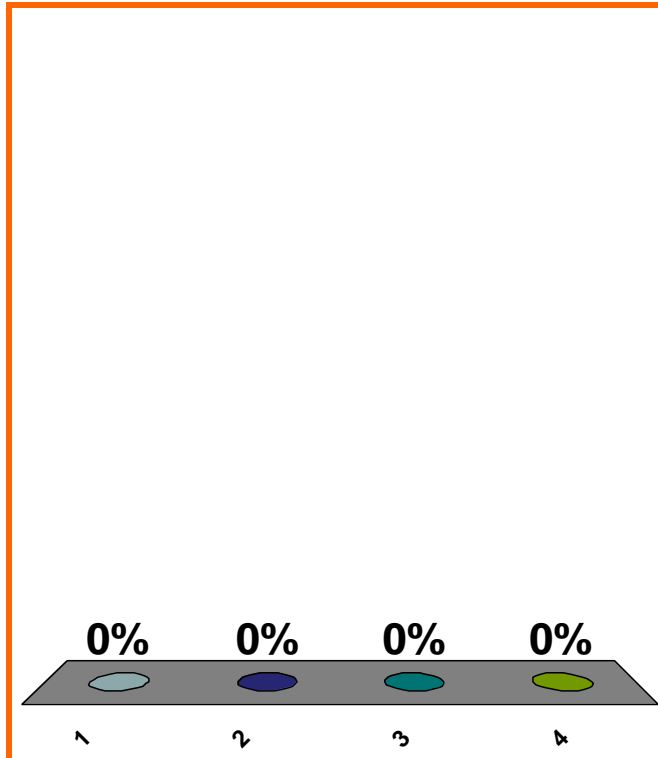
for $\int_1^2 e^x dx$

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

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

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

(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

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

n th right endpt Riem. sum

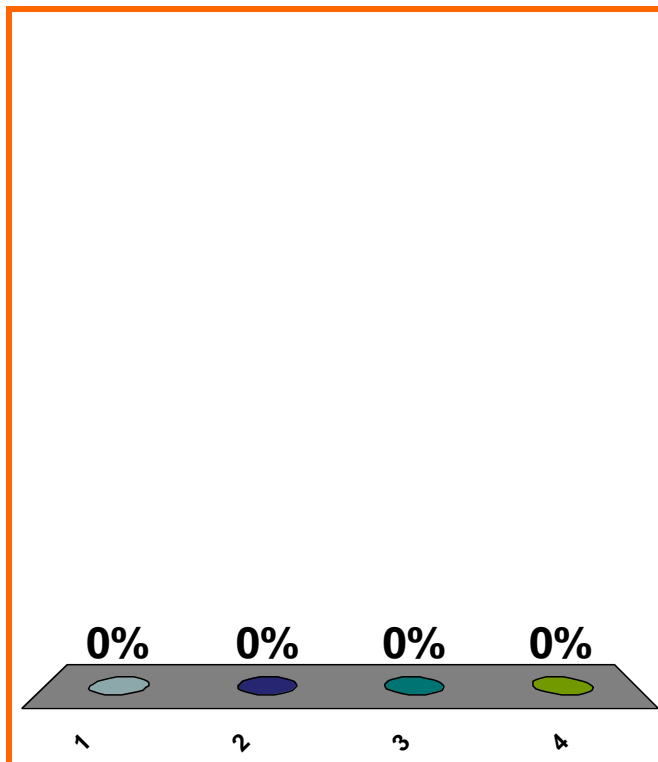
$$\text{for } \int_2^6 x^5 dx$$

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

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

(d) none of the above

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



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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Topic 0590

10 pts

12

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

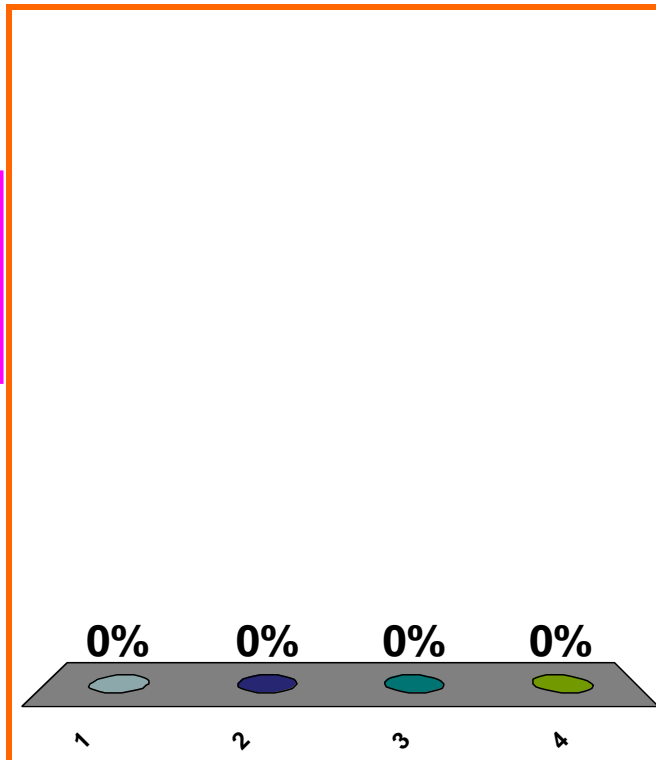
n th midpt Riem. sum

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

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

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

(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
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Topic 0590

10 pts

13

LOOK BACK (MAX-MIN)

Minimize $S := x + 2y$ among **positive** x, y **s.t.**

$$x^2 y^3 = 27.$$

LOOK BACK (FTC)

$$\frac{d}{dx} \left[\int_{g(x)}^{h(x)} f(t) dt \right]$$

CURRENT

Disk/washer problem

$$x = 5, x = 7$$

$$y = 2/x$$

$$y = 0$$

about x -axis.

Disk/washer problem

$$x = 5, x = 7$$

$$y = 2/x$$

$$y = 1/x$$

about x -axis.

SAVE THE
SESSION
DATA

RETURN TO
PRESENTATION