

# Calculus

W 27 February 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

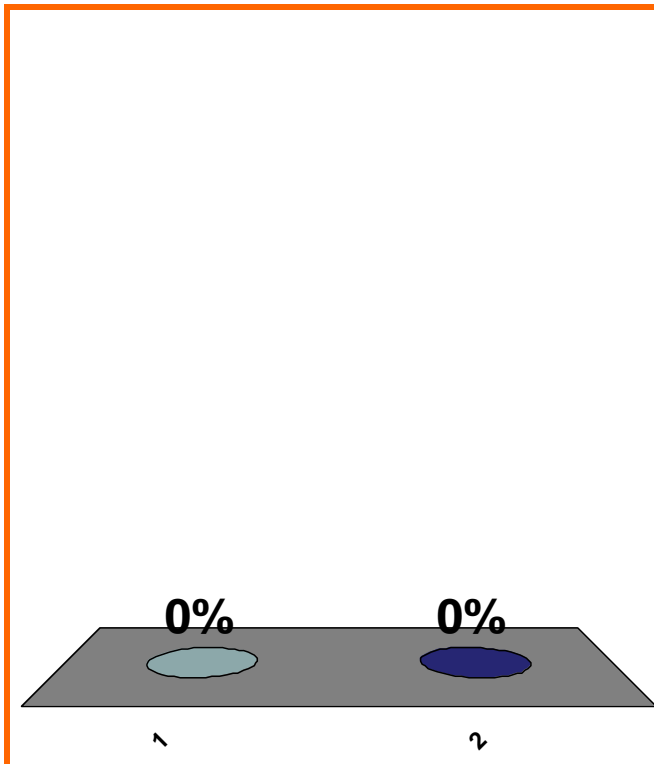
Topics covered are in bounds

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	31	32	33	34	35	36	37	38	39	40

0 of 5

arithmetic

0 pts

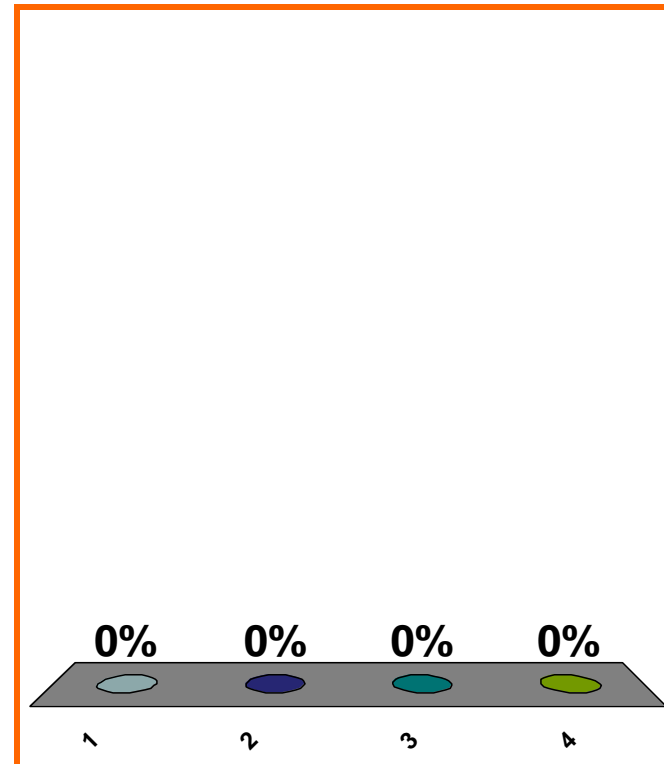
$$(d/dx)(e^{-2x})$$

(a)  $e^{-2x}$

(b)  $e^{-2}$

(c)  $-2e^{-2x}$

(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

$$(d/dx)(\arctan x) = \frac{1}{1+x^2}$$

$$(d/dx)(\arctan e^x) = ??$$

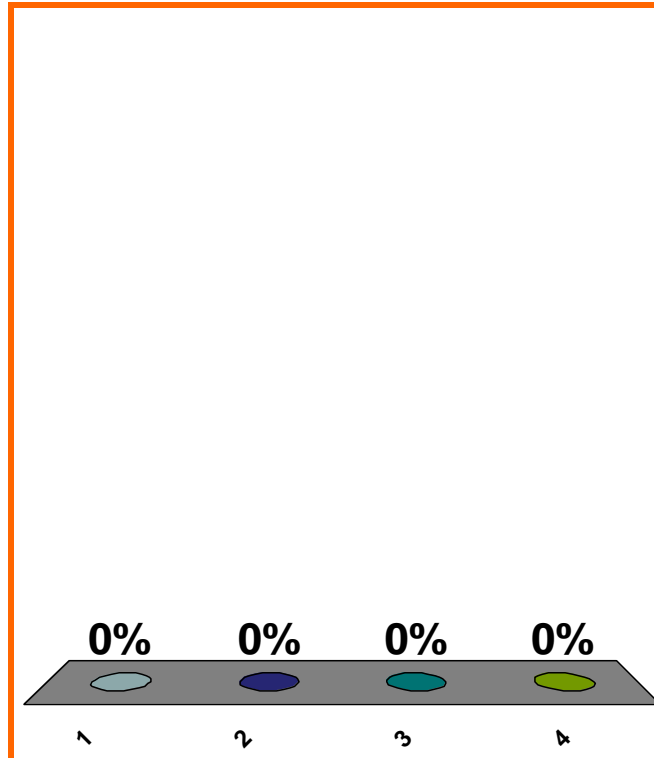
(a)  $\frac{1}{1+(e^x)^2}$

(b)  $(\operatorname{arcsec}^2 e^x)(e^x)$

(c)  $\frac{1}{1-(e^x)^2}$

(d) none of the above

Correct answer:  $\frac{e^x}{1+(e^x)^2}$



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

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Topic 0370

20 pts

$$h'(x) = [g'(f(x))][f'(x)]$$
$$h'(4) = [g'(f(4))][f'(4)]$$

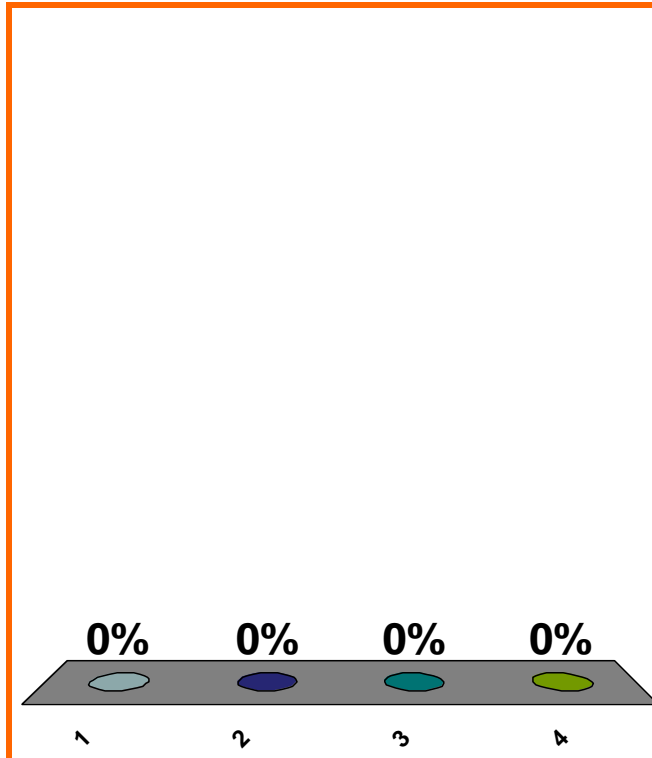
$$f(4) = 7, f'(4) = 1$$
$$g(7) = 6, g'(7) = 3$$
$$h(x) = g(f(x))$$
$$h(4) = ??, h'(4) = ??$$

(a) 6, 3

(b) 6, 27

(c) 42, 27

(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 0370

20 pts



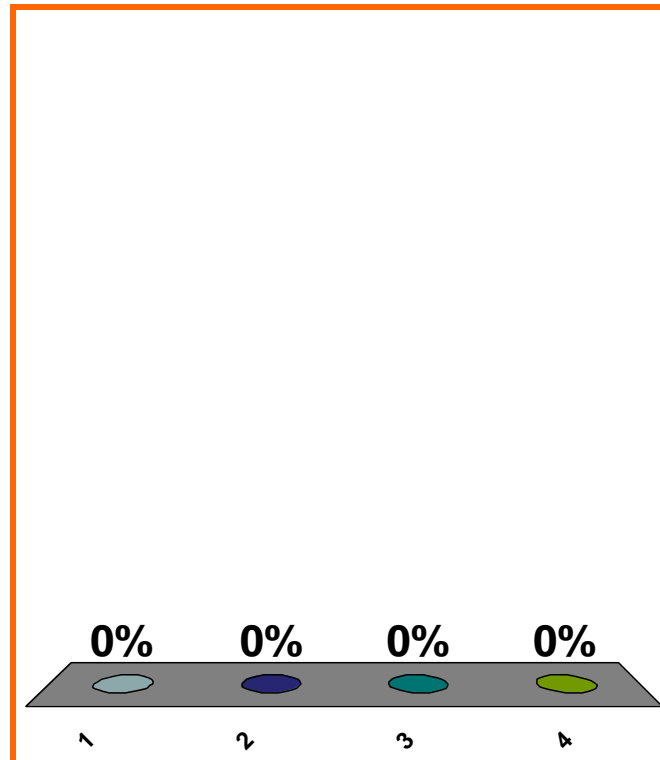
$$(a) \frac{2x + 3}{x^2 + 3x - 1}$$

$$(b) \frac{x^2 + 3x - 1}{2x + 3}$$

$$(c) \ln |2x + 3|$$

(d) none of the above

$$\frac{d}{dx} \left[ \ln |x^2 + 3x - 1| \right]$$



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

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Topic 0390

20 pts

$$\frac{d}{dx} [7^{1/2}] = ??$$

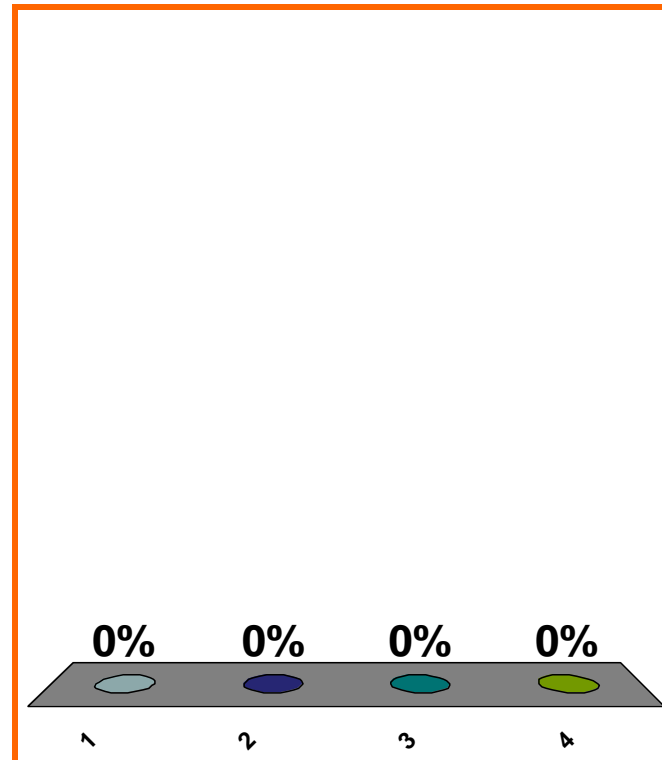
(a) DNE

(b)  $[1/2] [7^{-1/2}]$

(c)  $7^{1/2}(\ln 7)$

(d) none of the above

Correct answer: 0



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

$$f(x) = e^x + x^5$$

slope of tangent line at  $(1, e + 1)$ ?

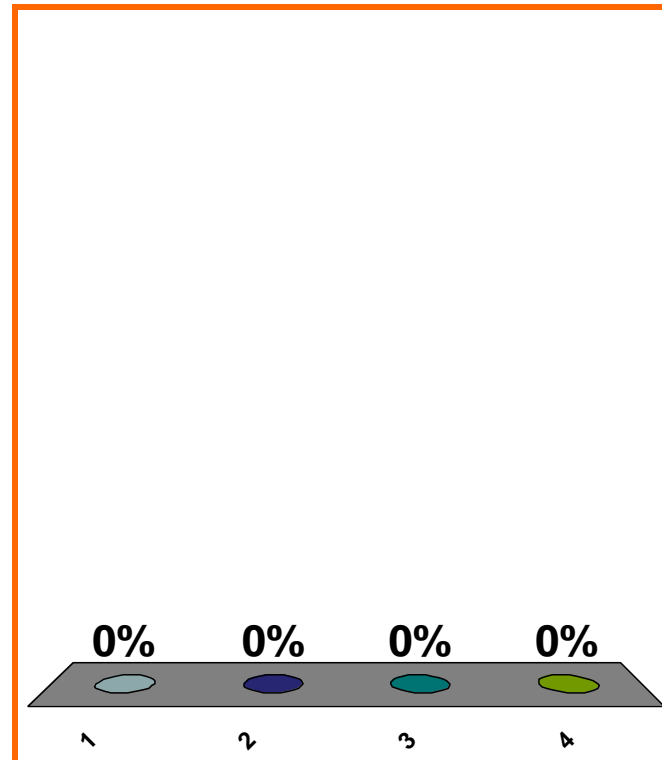
$$f'(x) = e^x + 5x^4$$

(a)  $e + 1$

(b)  $e + 5$

(c)  $e^x + 5x^4$

(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

$$h'(x) = [f'(x)][g(x)] + [f(x)][g'(x)]$$

$$h'(4) = [f'(4)][g(4)] + [f(4)][g'(4)]$$

$$f(4) = 7, f'(4) = 1$$

$$g(4) = 6, g'(4) = 3$$

$$h(x) = [f(x)][g(x)]$$

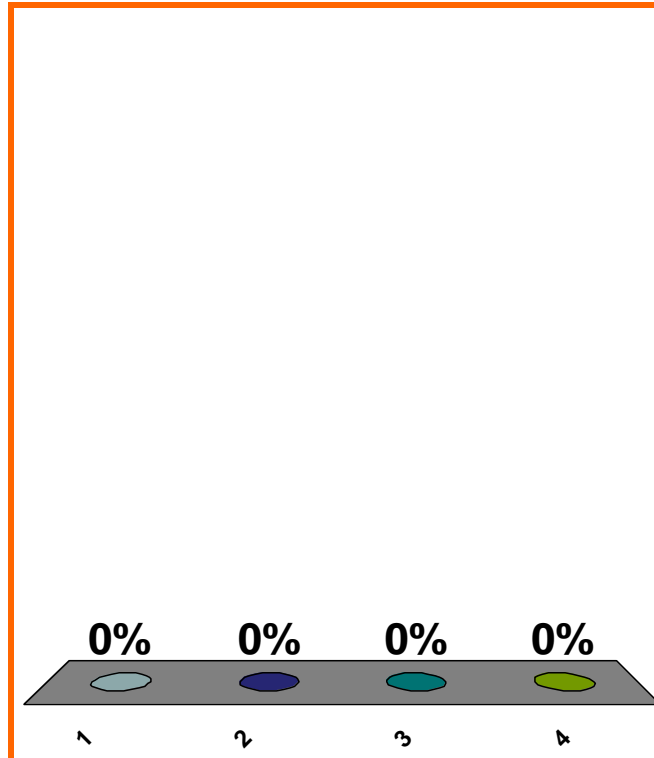
$$h(4) = ??, h'(4) = ??$$

(a) 42, 3

(b) 13, 27

(c) 42, 27

(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

$$h'(x) = \frac{[g(x)][f'(x)] - [f(x)][g'(x)]}{[g(x)]^2}$$

$$h'(4) = \frac{[g(4)][f'(4)] - [f(4)][g'(4)]}{[g(4)]^2}$$

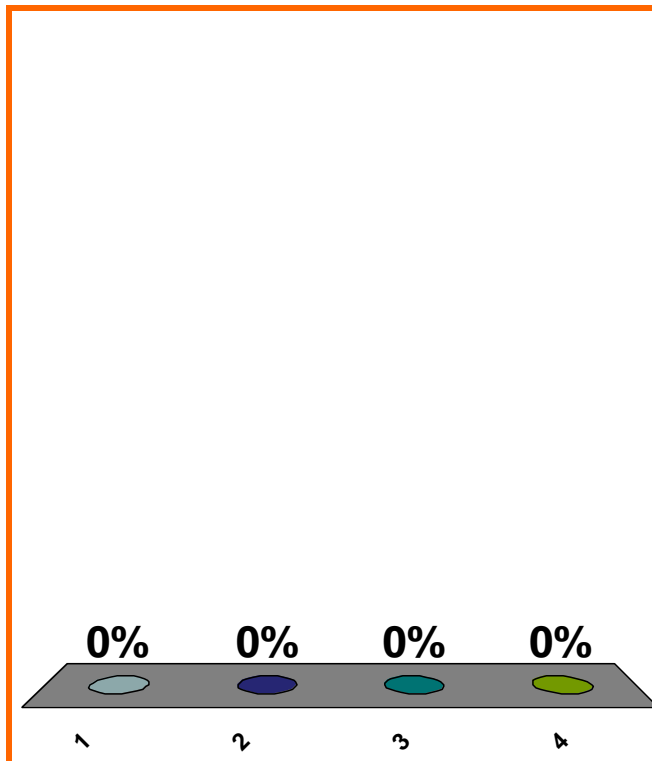
(a)  $7/6, (6 - 21)/3^2$

(b)  $7/6, (21 - 6)/3^2$

(c)  $7/6, (6 - 21)/6^2$

(d) none of the above

$$f(4) = 7, f'(4) = 1$$
$$g(4) = 6, g'(4) = 3$$
$$h(x) = [f(x)]/[g(x)]$$
$$h(4) = ??, h'(4) = ??$$



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

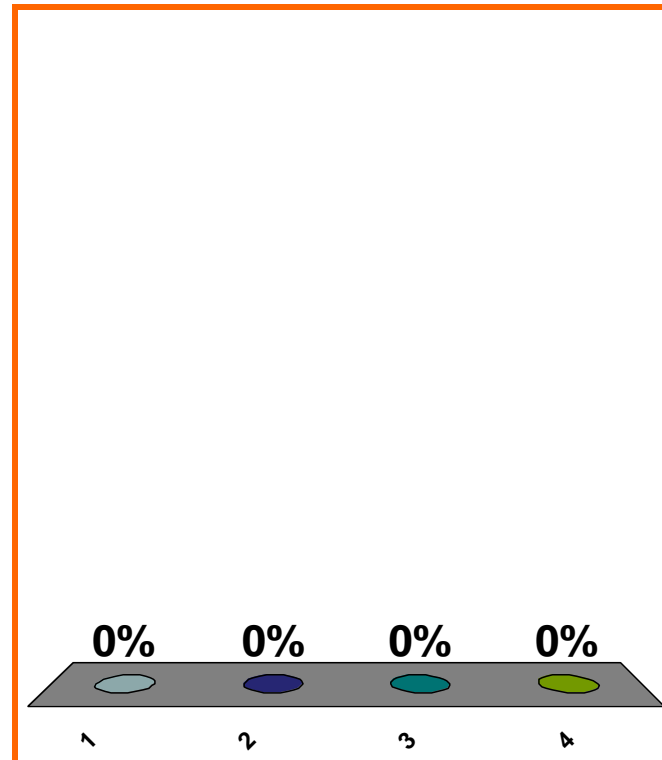
$$\frac{d}{dx} [3 \sin x + 4 \cos x] = ??$$

(a)  $(0)(\cos x) + (0)(-\sin x)$

(b)  $3 \cos x + 4 \sin x$

(c)  $3 \cos x - 4 \sin x$

(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



$$\frac{d}{dx} [x \sin x + 4 \cos x] = ??$$

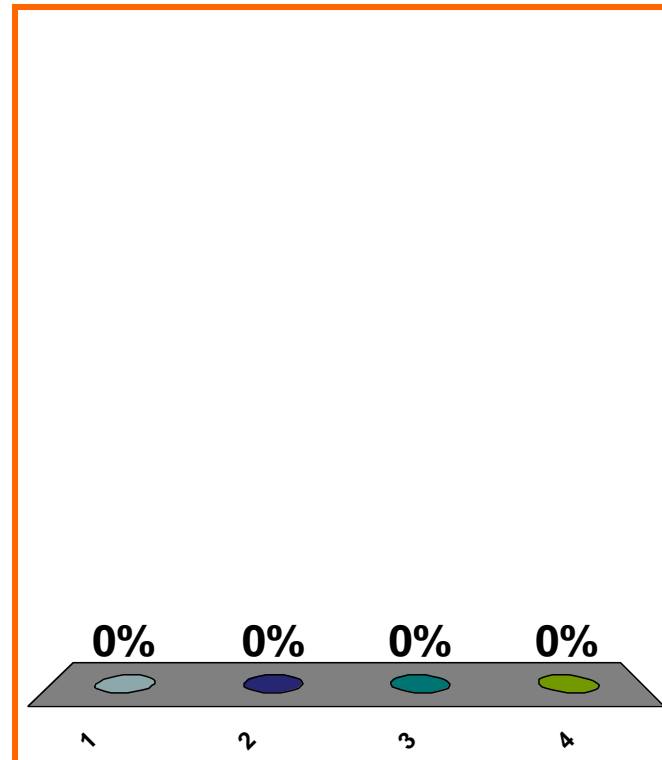
(a)  $(1)(\cos x) + (0)(-\sin x)$

(b)  $x \cos x + 4 \sin x$

(c)  $x \cos x - 4 \sin x$

(d) none of the above

Correct:  $\sin x + x \cos x - 4 \sin x$



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 0360

0 pts

17

$$\frac{d}{dx} [\sin x] = \cos x$$

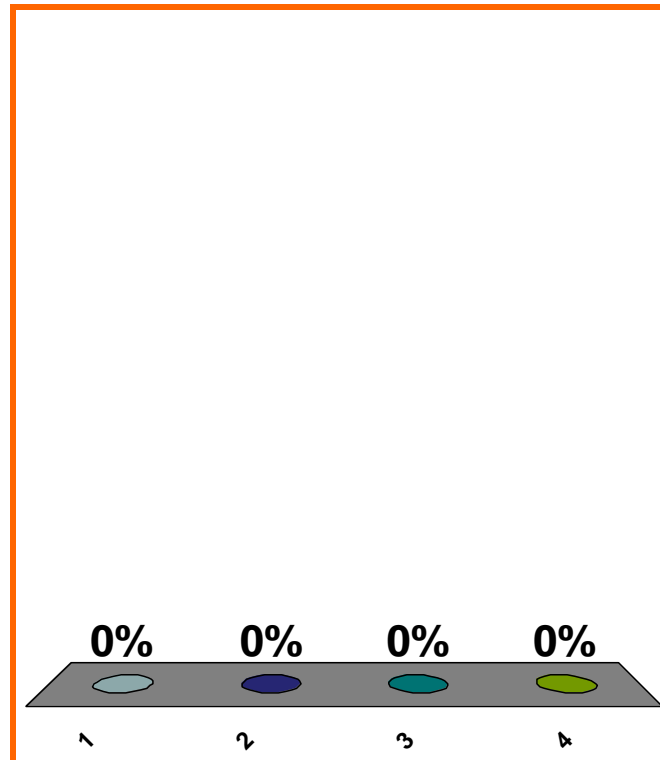
$$\frac{d}{dx} [(x^2)(\sin x)] = ??$$

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

(b)  $(2x)(-\cos x)$

(c)  $(2x)(\sin x) + (x^2)(\cos x)$

(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

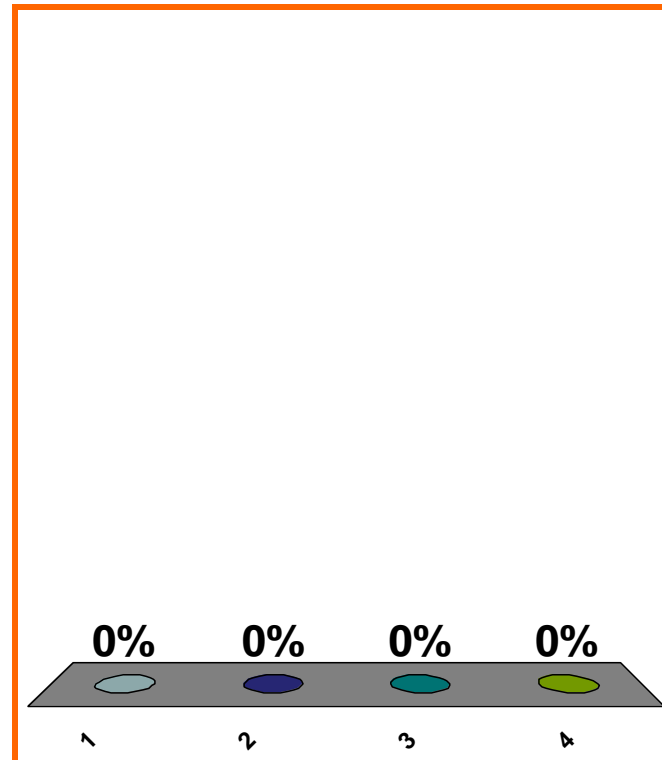
$$\frac{d}{dx} \left[ \frac{\sin x}{x} \right] = ??$$

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

(b)  $\frac{(\sin x)(1) - (x)(\cos x)}{x^2}$

(c)  $\frac{(x)(\cos x) - (\sin x)(1)}{x^2}$

(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

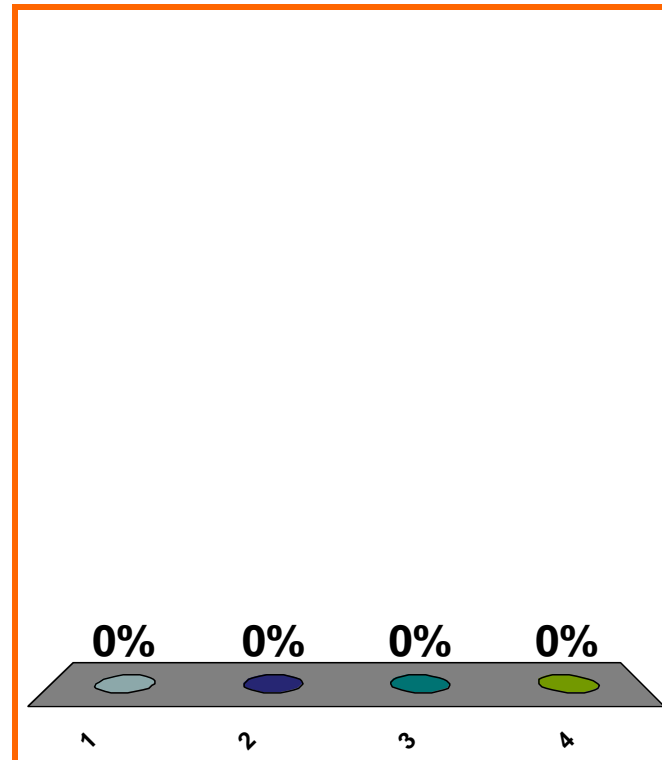
$$\frac{d}{d\theta} [\csc \theta]$$

(a)  $-\csc \theta \cot \theta$

(b)  $-\csc \theta \cot \theta$

(c)  $-\csc^2 \theta$

(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

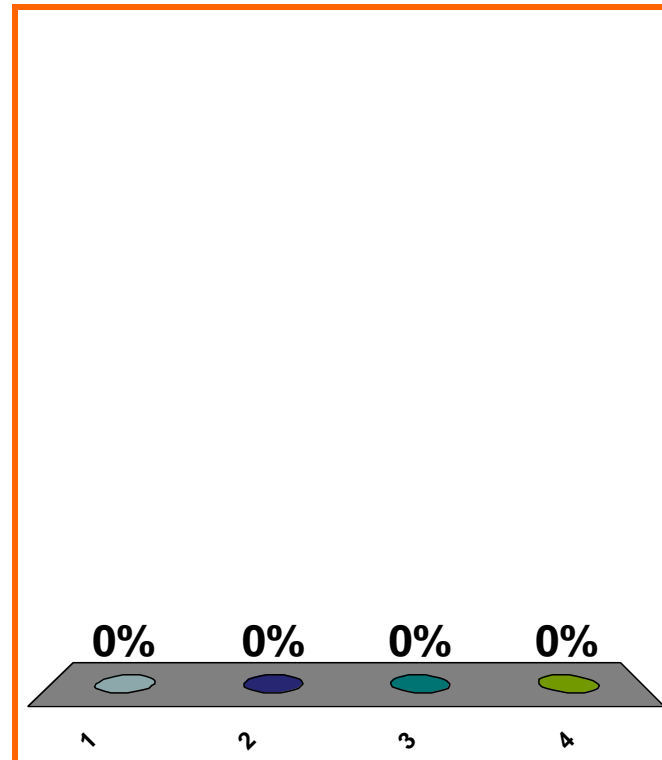
$$\frac{d}{dx} [(x^2)(\sin x)] = ??$$

(a)  $(2x)(\cos x) + (x^2)(\sin x)$

(b)  $(2x)(\sin x) + (x^2)(\cos x)$

(c)  $(2x)(\cos x)$

(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

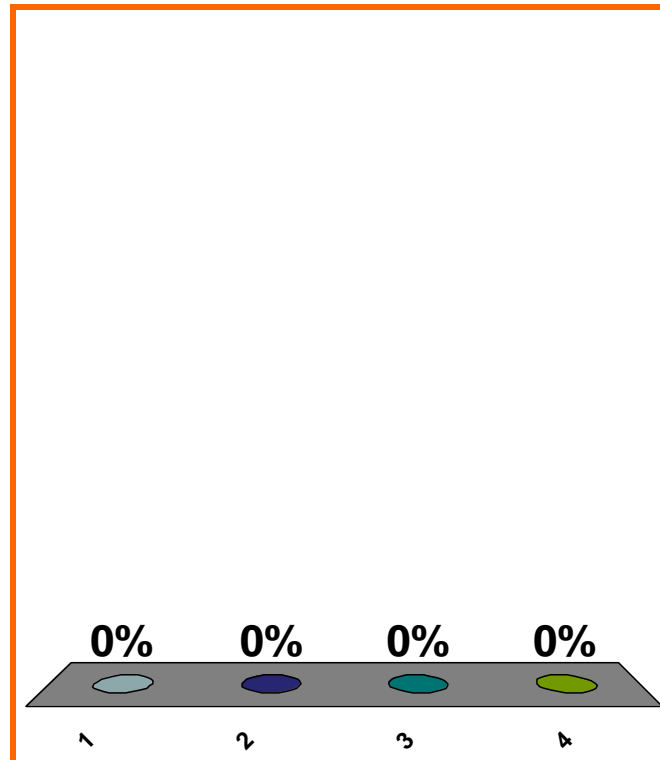
$$\frac{d}{dx} \left[ \frac{\sin x}{x^2} \right] = ??$$

$$(a) \frac{(x^2)(\cos x) - (\sin x)(2x)}{x^4}$$

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

$$(c) \frac{(\sin x)(2x) - (x^2)(\cos x)}{x^4}$$

(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

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Topic 0360

0 pts

22

$$(d/dx)(\arctan x) = \frac{1}{1+x^2}$$

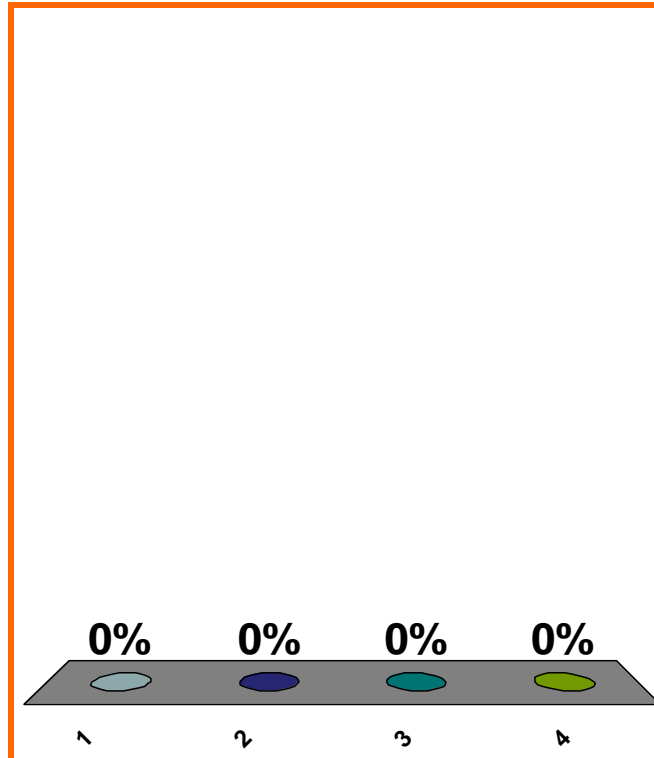
$$(d/dx)(\arctan e^x) = ??$$

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

$$(b) (\operatorname{arcsec}^2 e^x)(e^x)$$

$$(c) \frac{1}{1+(e^x)^2}$$

(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

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Topic 0370

0 pts

23

$$(d/dx)(e^{-2x})$$

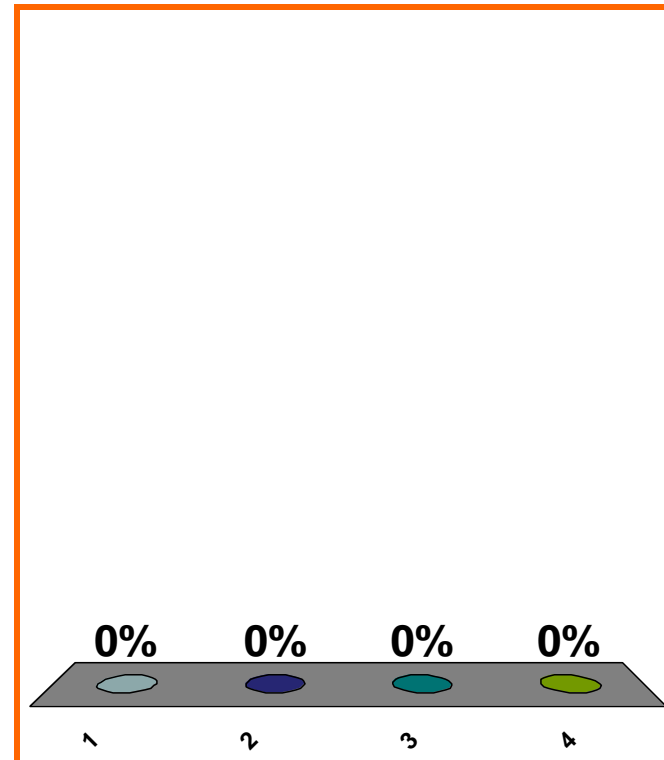
(a)  $e^{-2x}$

(b)  $e^{-2}$

(c)  $2e^{2x}$

(d) none of the above

Correct answer:  $-2e^{-2x}$



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 0370

0 pts

24



$$h'(x) = [g'(f(x))][f'(x)]$$
$$h'(4) = [g'(f(4))][f'(4)]$$

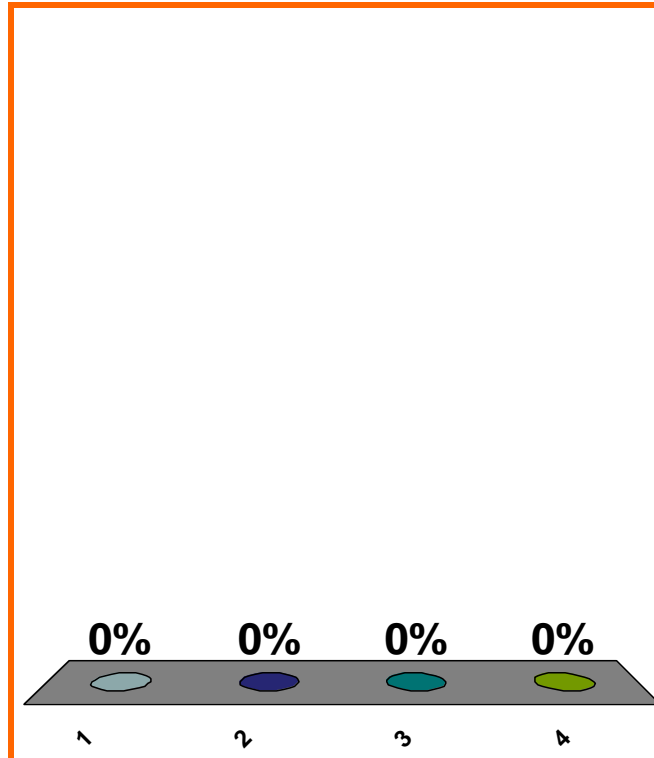
$$f(4) = 7, f'(4) = 1$$
$$g(7) = 6, g'(7) = 3$$
$$h(x) = g(f(x))$$
$$h(4) = ??, h'(4) = ??$$

(a) 6, 3

(b) 6, 27

(c) 42, 27

(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

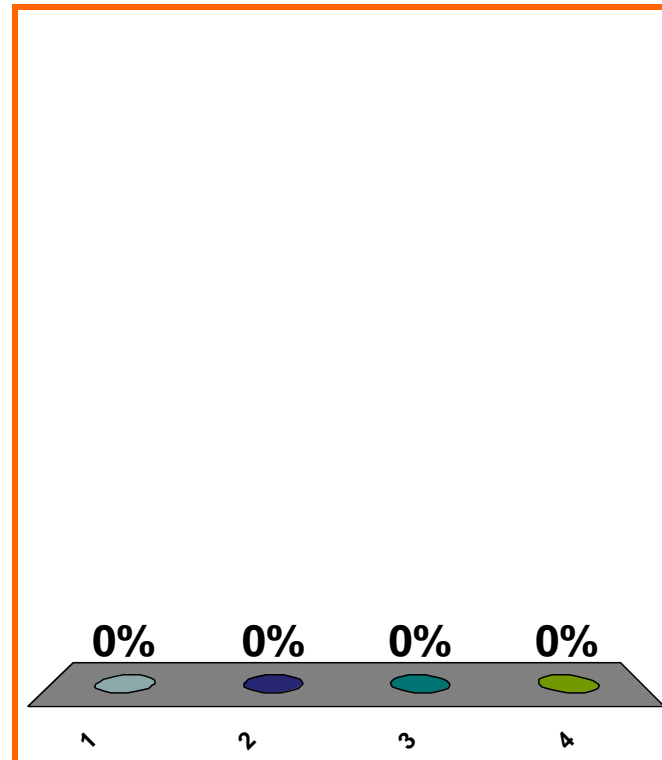
$$\frac{d}{dt} [\csc \theta]$$

(a)  $-\csc \theta \cot \theta \dot{\theta}$

(b)  $-\csc \theta \cot \theta$

(c)  $-\csc^2 \theta \dot{\theta}$

(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

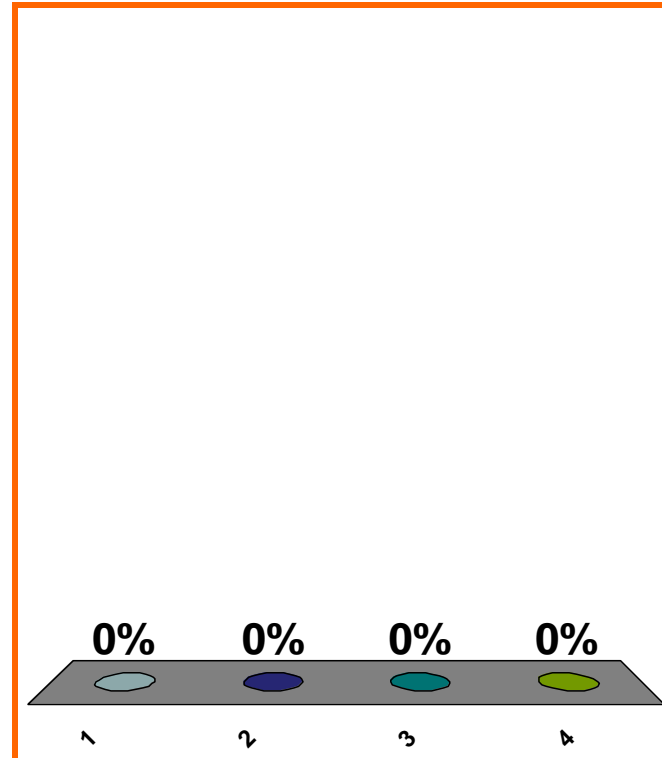
$$(d/dx)(\ln x)$$

(a)  $1/x, x > 0$

(b)  $|1/x|$

(c)  $1/x$

(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 0390

0 pts

27

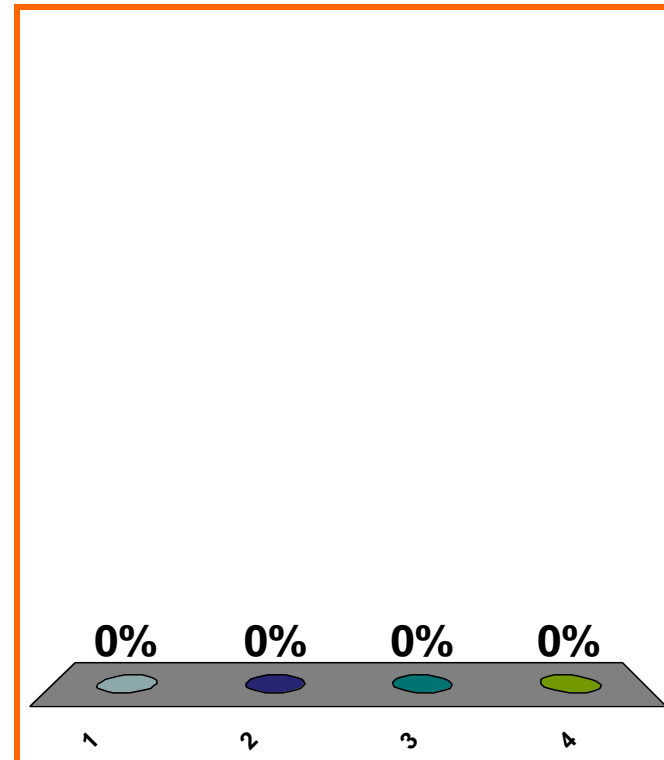
$$(d/dx)(\ln |x|)$$

(a)  $1/x, x > 0$

(b)  $|1/x|$

(c)  $1/x$

(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

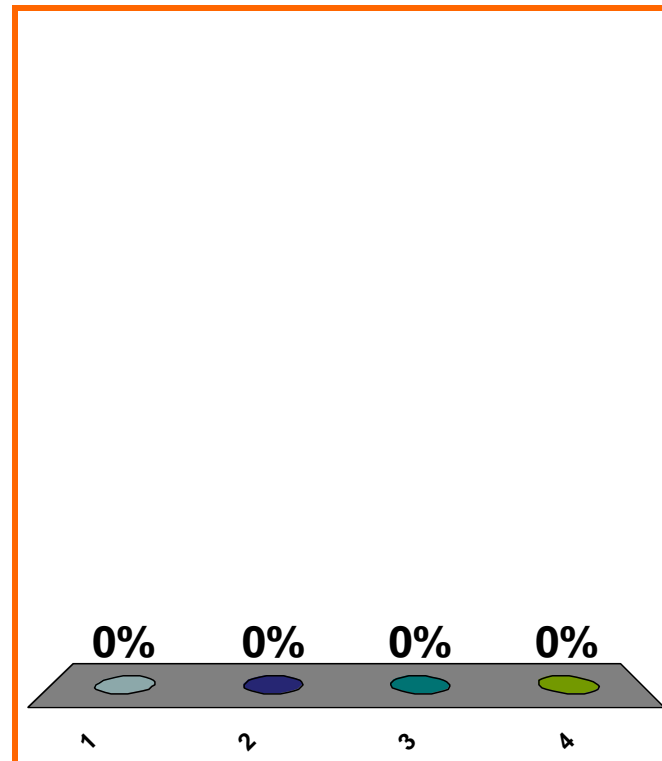
$$\frac{d}{dx} \left[ \ln(x^2 + 4x - 1) \right]$$

(a)  $\ln(2x + 4)$

(b)  $\left[ \ln(x^2 + 4x - 1) \right] [2x + 4]$

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

(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

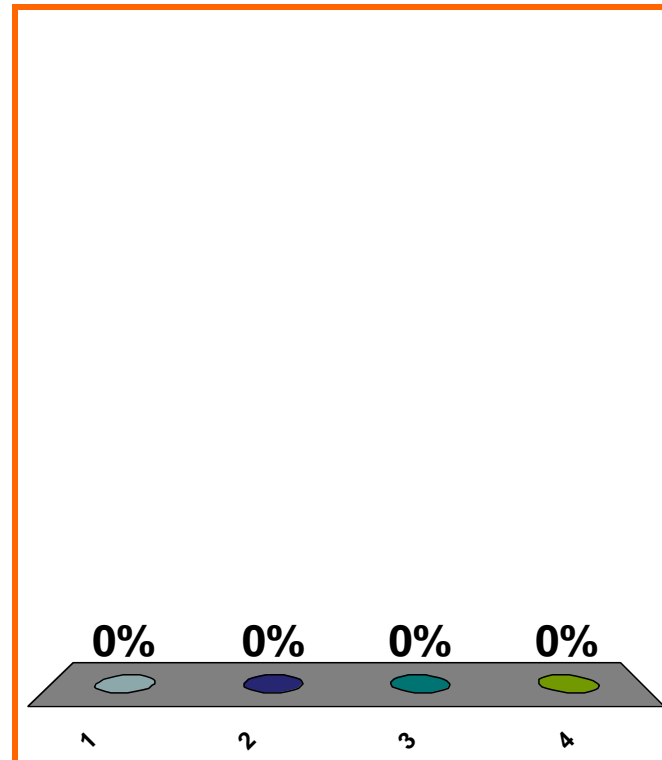
$$\frac{d}{dx} \left[ \ln \left( (x^2 + 4x - 1)^{1/3} \right) \right]$$

$$(a) \frac{1}{3} \cdot \frac{2x + 4}{x^2 + 4x - 1}$$

$$(b) \left( \frac{2x + 4}{x^2 + 4x - 1} \right)^{1/3}$$

$$(c) \frac{1}{3} \left( \frac{2x + 4}{x^2 + 4x - 1} \right)^{-2/3}$$

(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

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Topic 0390

0 pts

30

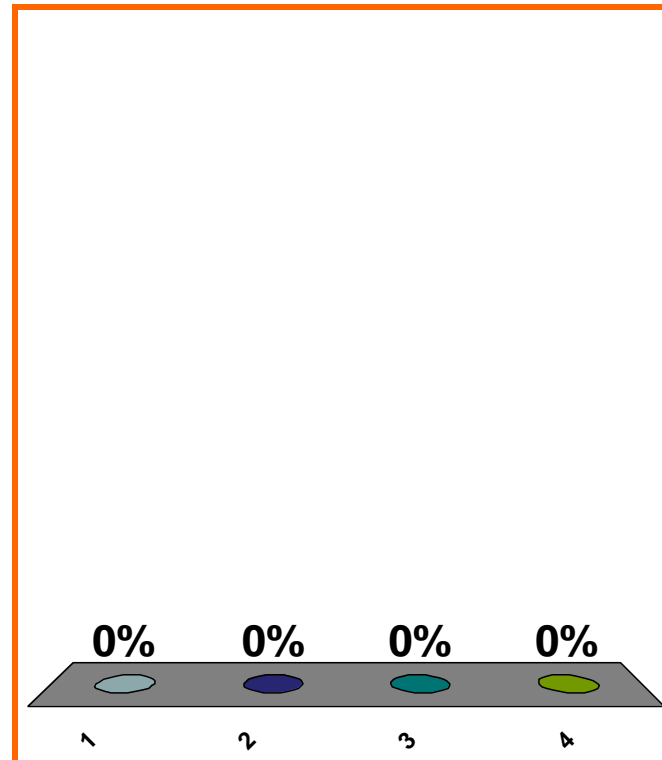
$$\frac{d}{dx} [x^{1/2}] = ??$$

(a) DNE

(b)  $[1/2] [x^{-1/2}]$

(c)  $x^{1/2}(\ln x)$

(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

$$\frac{d}{dx} [7x^2 + 4x - 1] = ??$$

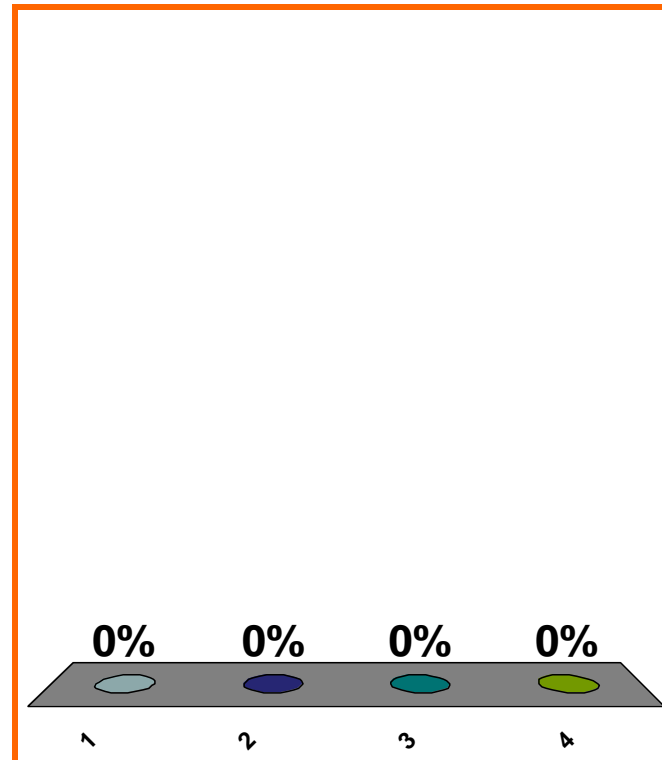
(a)  $7x + 4$

(b)  $7x^3 + 4x^2 - x$

(c)  $14x - 1$

(d) none of the above

Correct answer:  $14x + 4$

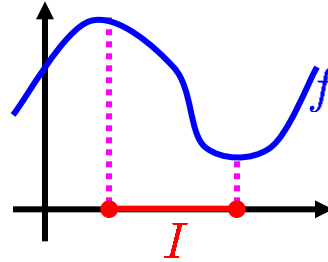


1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

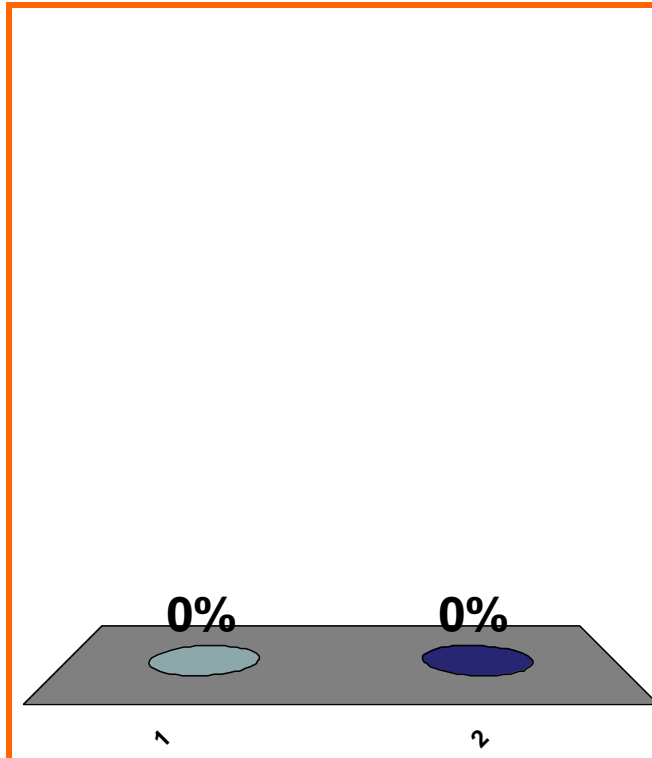


(a) True

(b) False



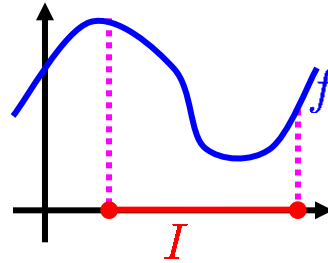
T or F:  
 $f$  decr. on  $I$



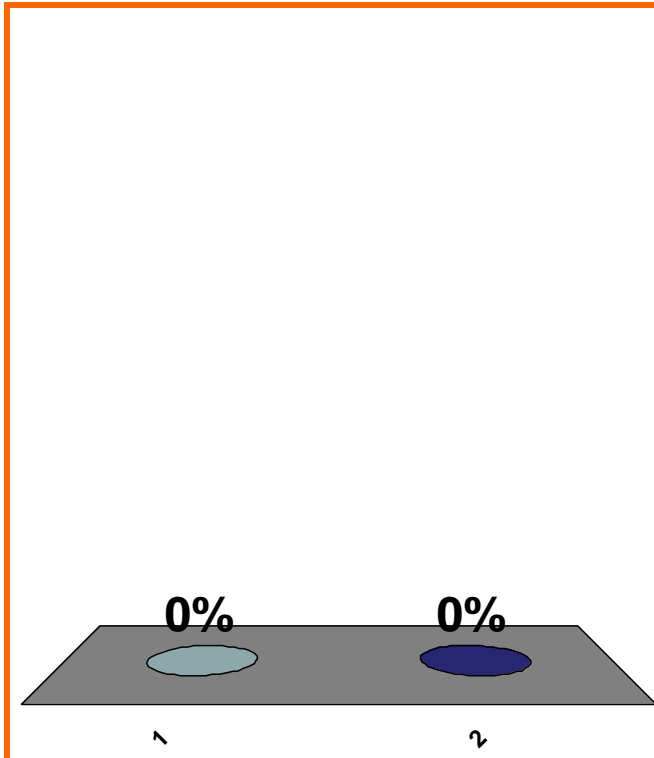
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

(a) True

(b) False



T or F:  
 $f$  decr. on  $I$



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

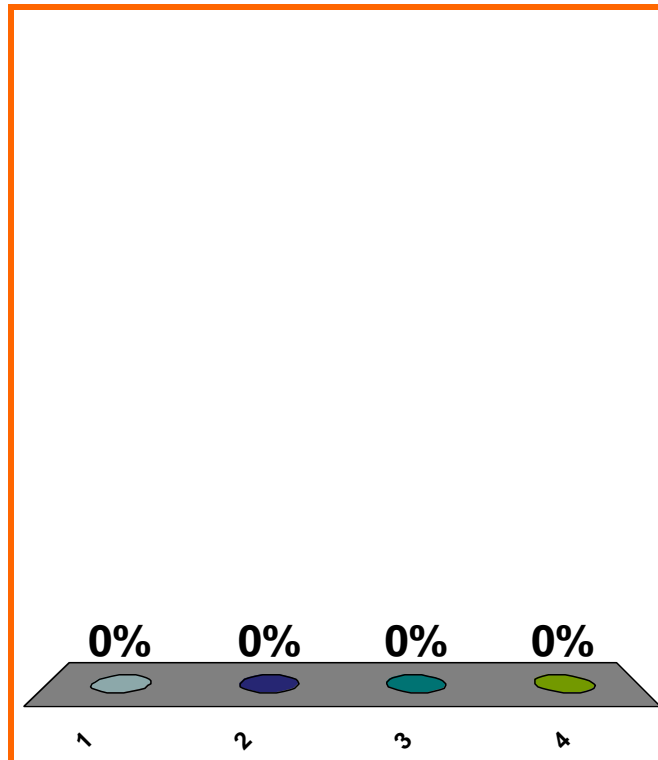
$$\frac{d}{dx} [\cos 7] = ??$$

(a) 0

(b)  $\sin 7$

(c)  $-\sin 7$

(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

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Topic 0310

0 pts

35

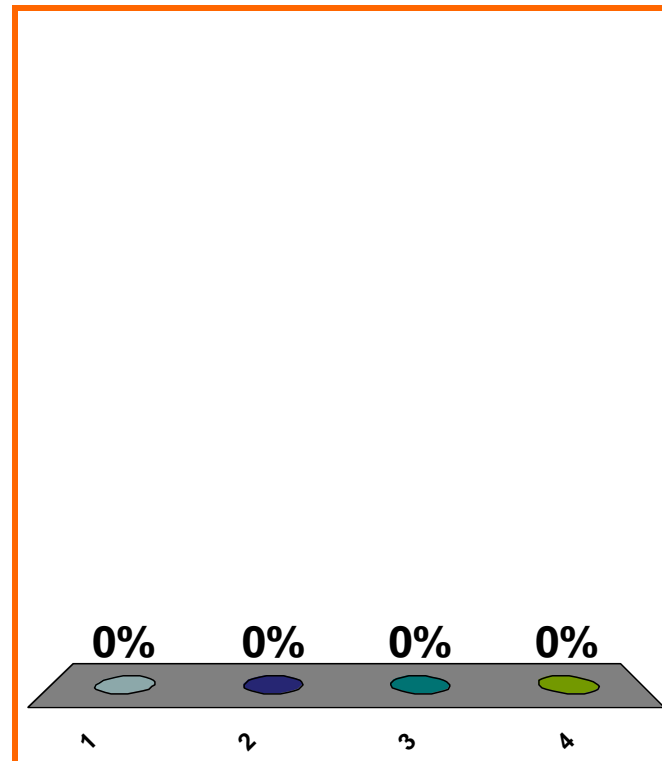
$$\frac{d}{dx} [(e^8)(\sin 3)] = ??$$

(a)  $(e^8)(\cos 3)$

(b)  $(e^8)(\sin 3) + (e^8)(\cos 3)$

(c) 0

(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

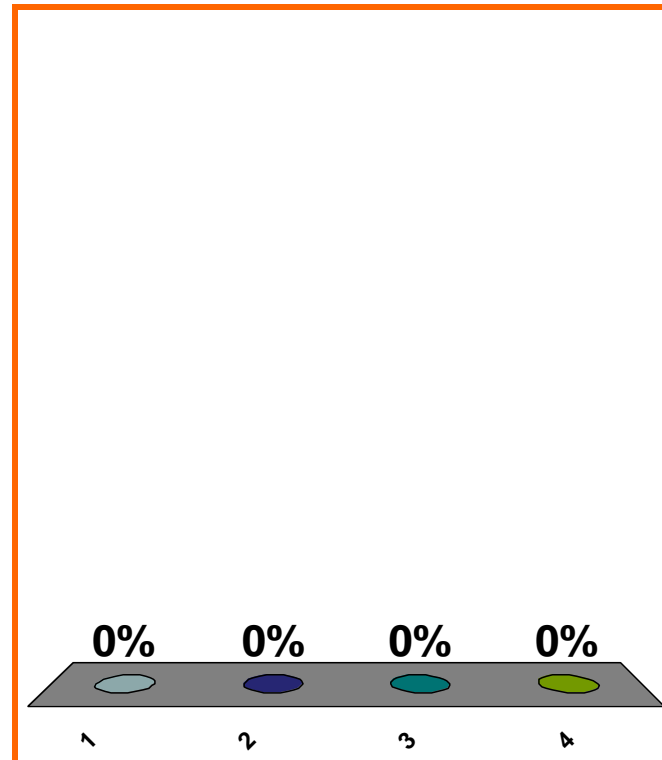
$$\frac{d}{dx} [(\ln 8)(\sin 3)] = ??$$

(a)  $(1/8)(\cos 3)$

(b) 0

(c)  $(1/8)(\sin 3) + (\ln 8)(\cos 3)$

(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 0310

0 pts

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$$\frac{d}{dx} [7^{1/2}] = ??$$

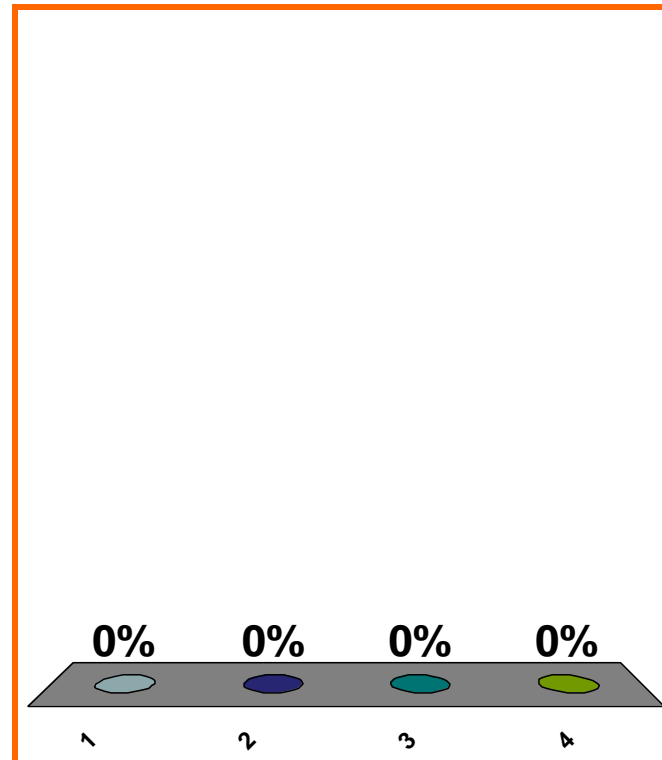
(a) DNE

(b)  $[1/2] [7^{-1/2}]$

(c)  $7^{1/2}(\ln 7)$

(d) none of the above

Correct answer: 0



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

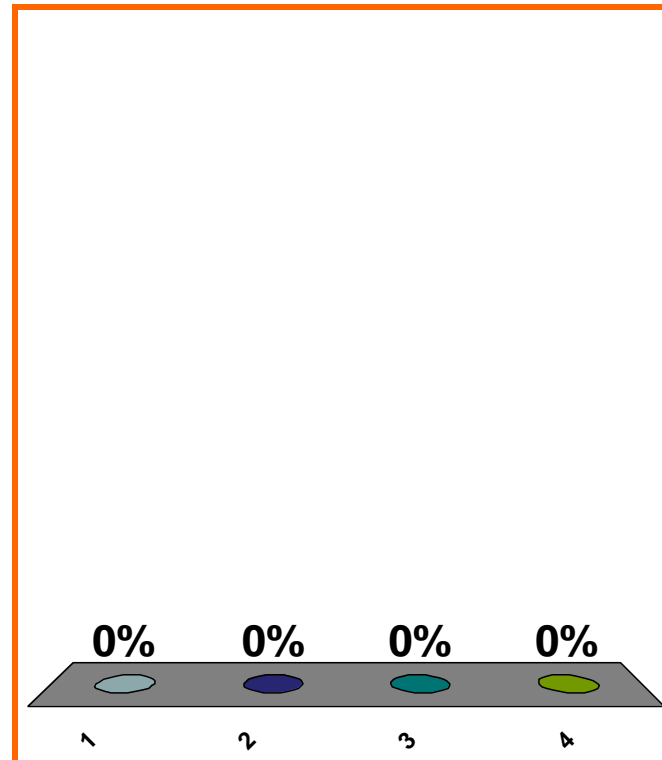
$$\frac{d}{dx} [x^{1/2}] = ??$$

(a) DNE

(b)  $[1/2] [x^{-1/2}]$

(c)  $x^{1/2}(\ln x)$

(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

SAVE THE  
SESSION  
DATA

RETURN TO  
PRESENTATION