

Calculus

W 27 March 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

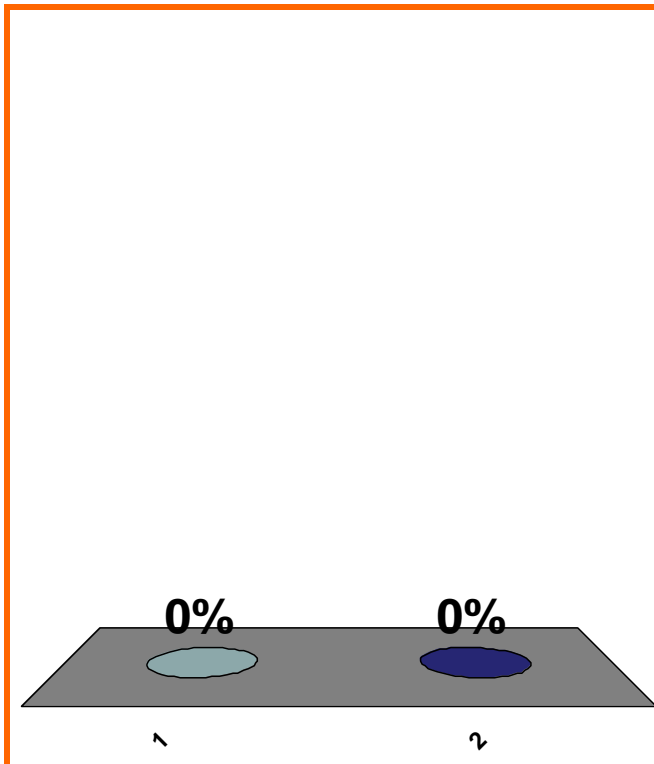
Topics covered are in bounds

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

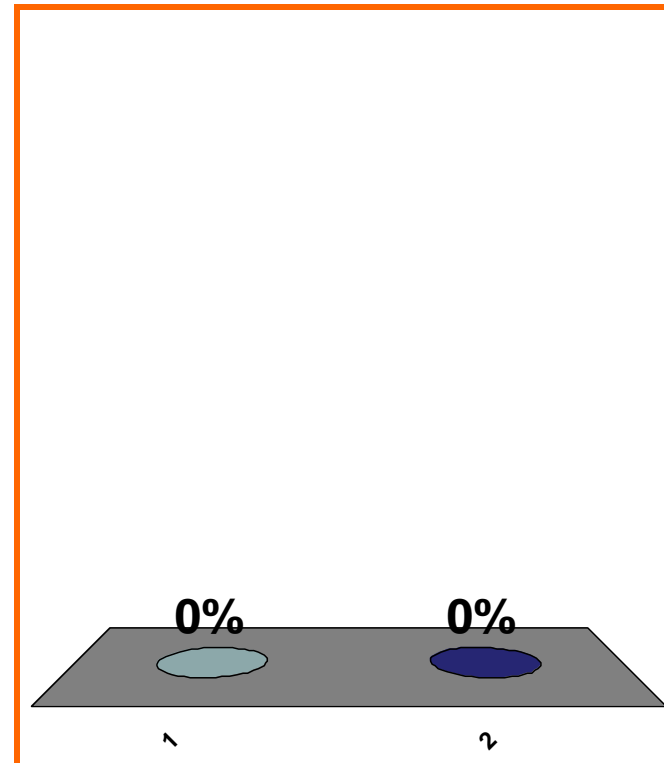
0 pts

T or F:

Any global max is
a local max.

(a) True

(b) False



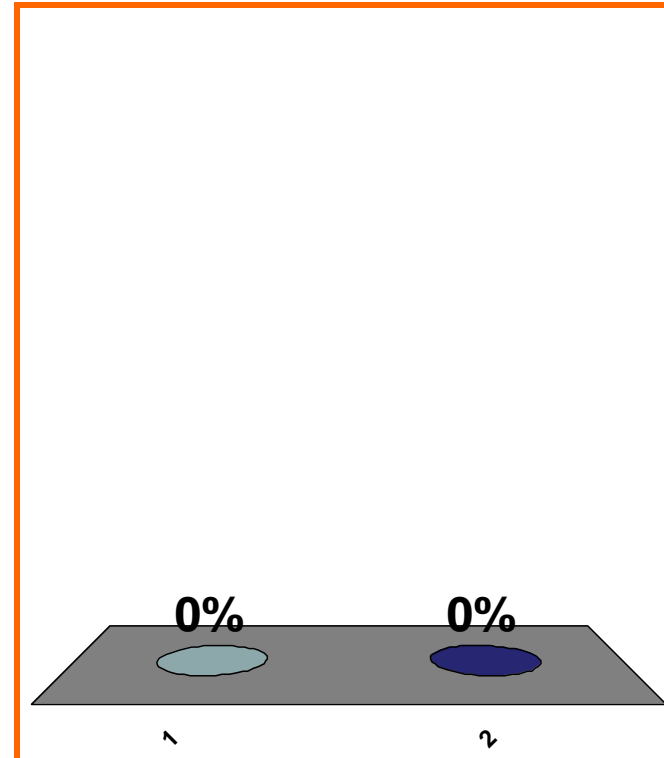
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

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

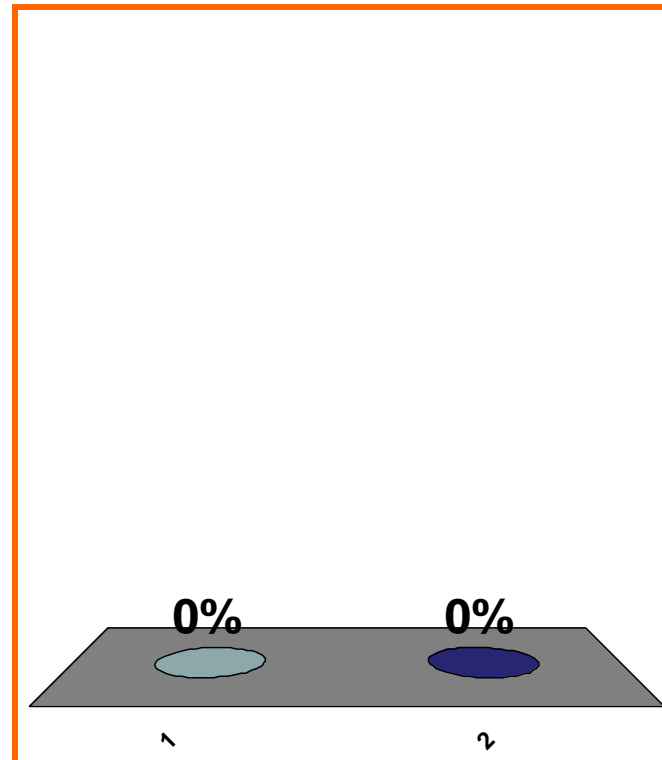
T or F:

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

0 of 5

Topic 0460

10 pts

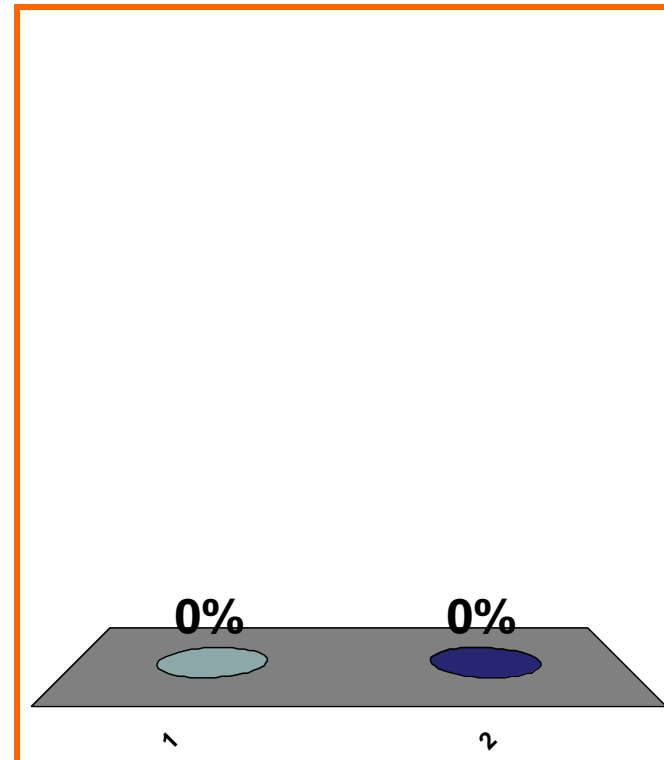
8

T or F:

If $f' > 0$ on I ,
then f is increasing 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 0460

10 pts

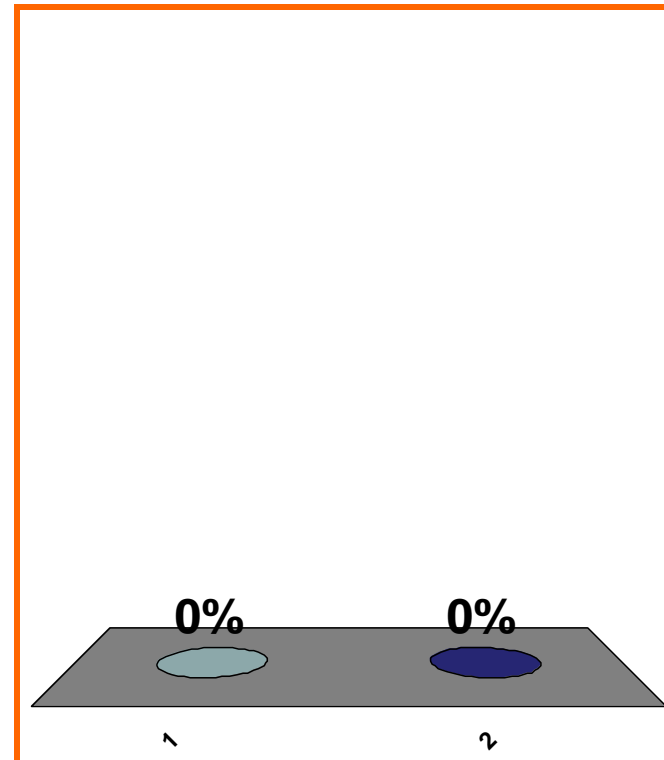
9

T or F:

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

(a) True

(b) False



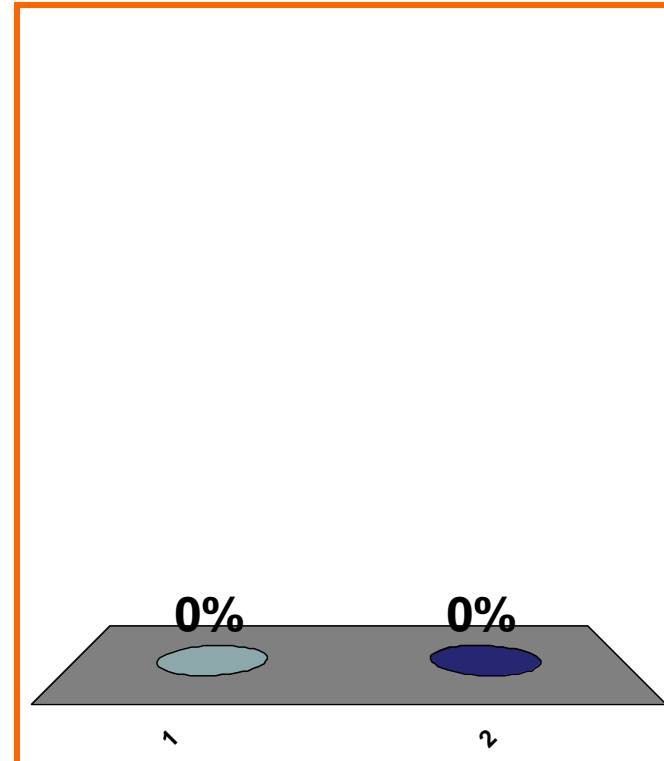
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

T or F:

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

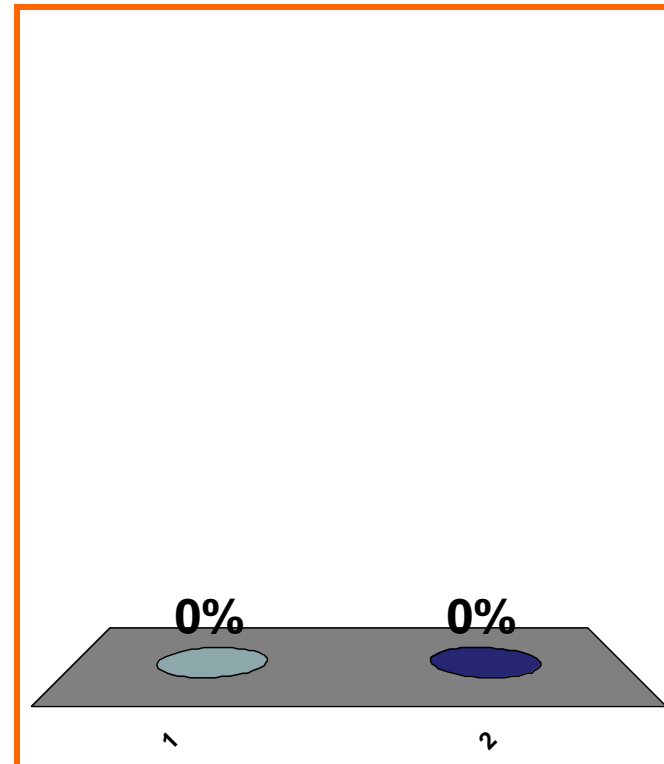
END
QUIZ

END
CLASS

T or F:
Any local max is
a global max.

(a) True

(b) False



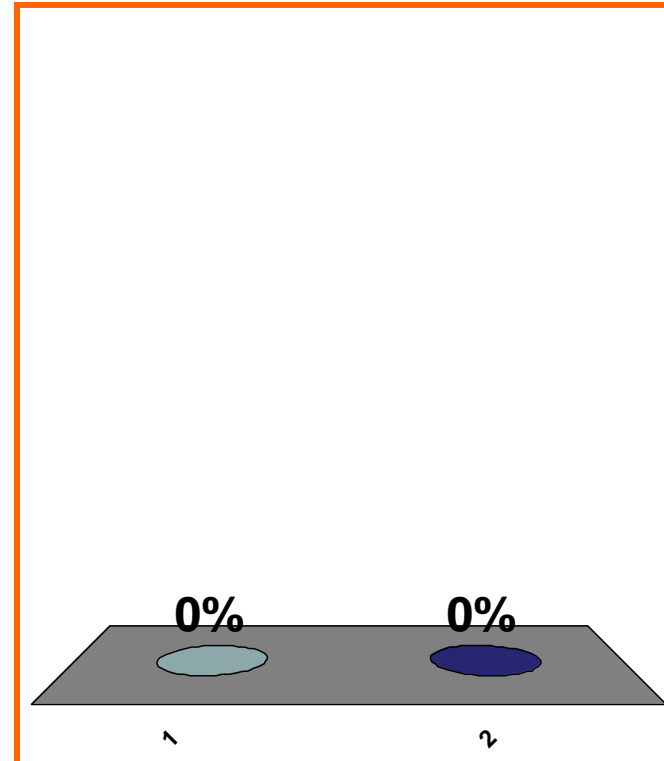
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

T or F:

At **any** critical number is
a local max or a local min.

(a) True

(b) False



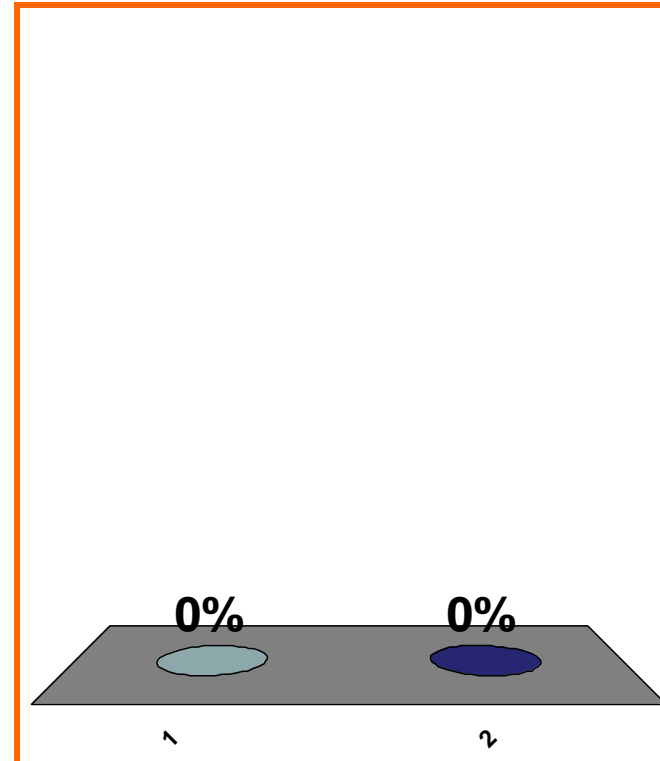
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

T or F:

Any local max or local 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

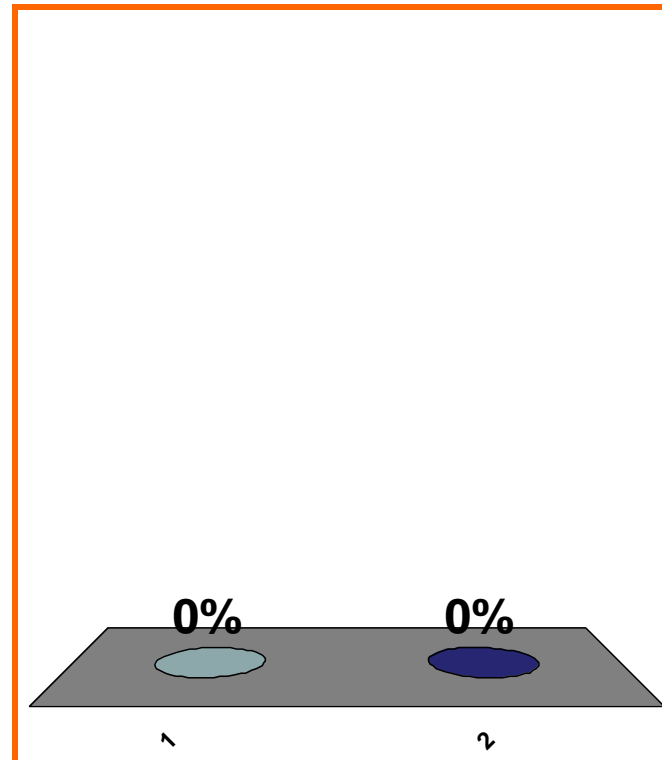
T or F:

f incr. on $(2, 3)$

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

(a) True

(b) False



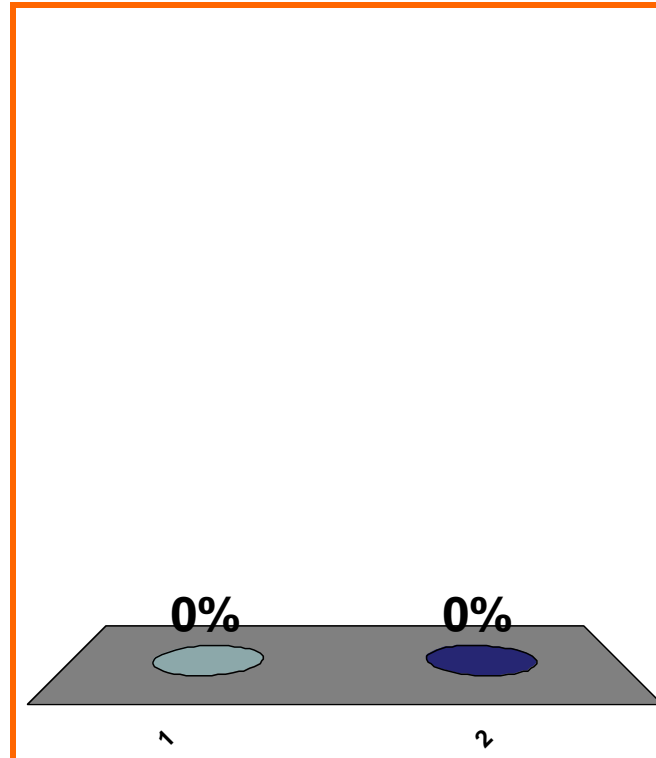
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

(a) True

(b) False



T or F:
 f incr. on $(2, 3)$
 f diff. on $(2, 3)$
 $f' \geq 0$ on $(2, 3)$



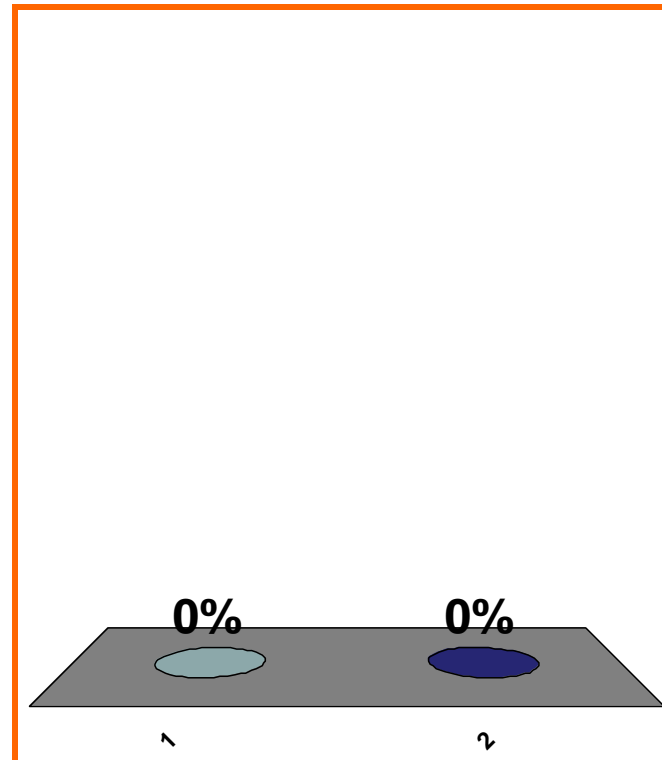
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

T or F:

$f' > 0$ on $(2, 3)$
 $\Rightarrow f$ incr. on $(2, 3)$

(a) True

(b) False



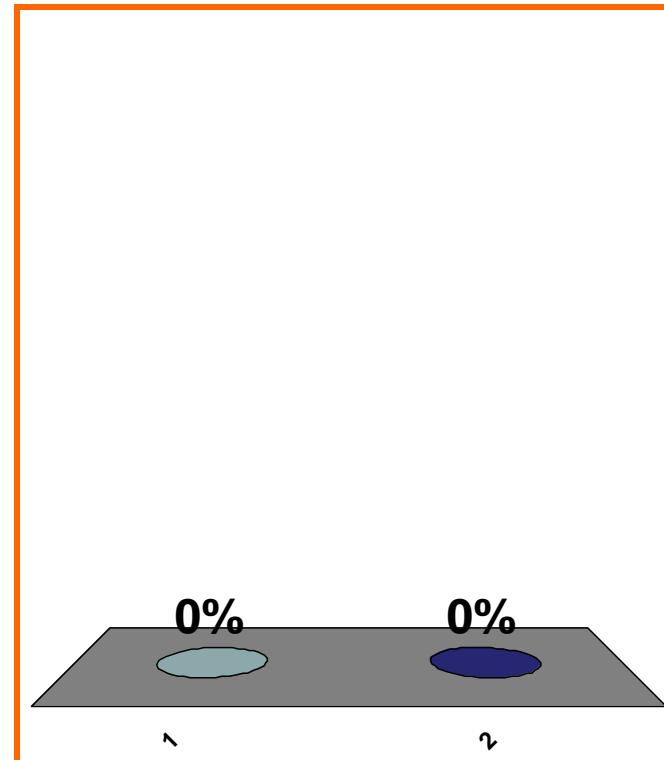
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

T or F:

If f is increasing on I ,
then $f' > 0$ on I .

(a) True

(b) False



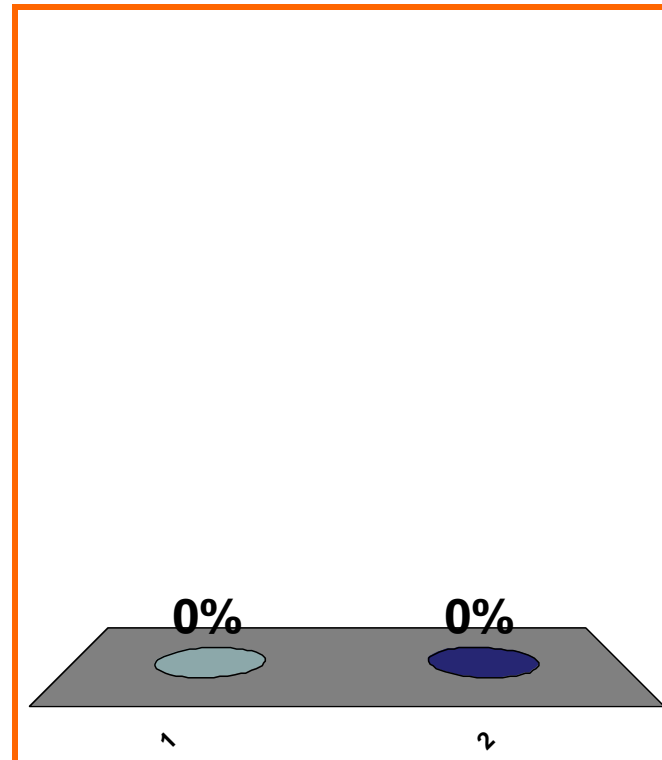
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

T or F:

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

(a) True

(b) False



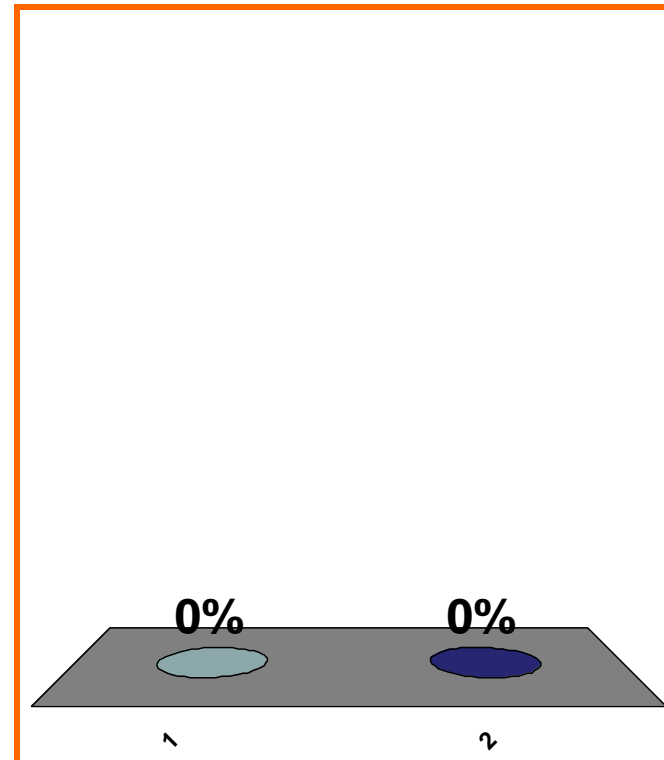
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

T or F:

If f is cc up on I ,
then $f'' > 0$ on I .

(a) True

(b) False



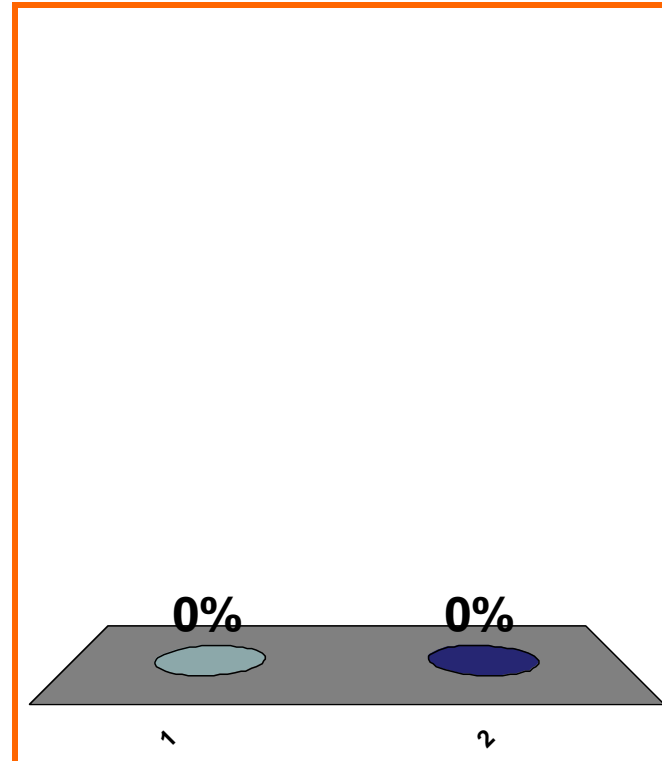
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

T or F:

If $f'' > 0$ on I ,
then f is cc up 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 0460

0 pts

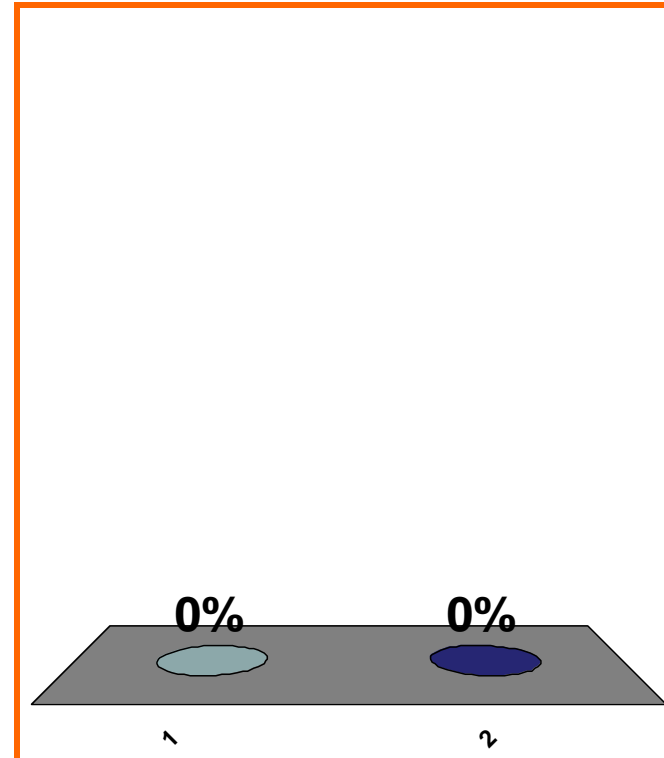
23

T or F:

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

(a) True

(b) False



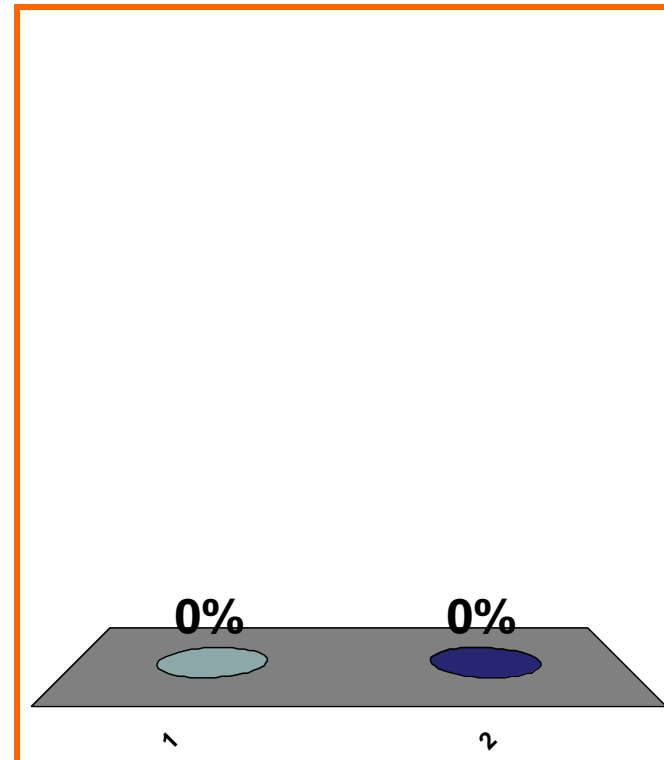
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

T or F:

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

(a) True

(b) False



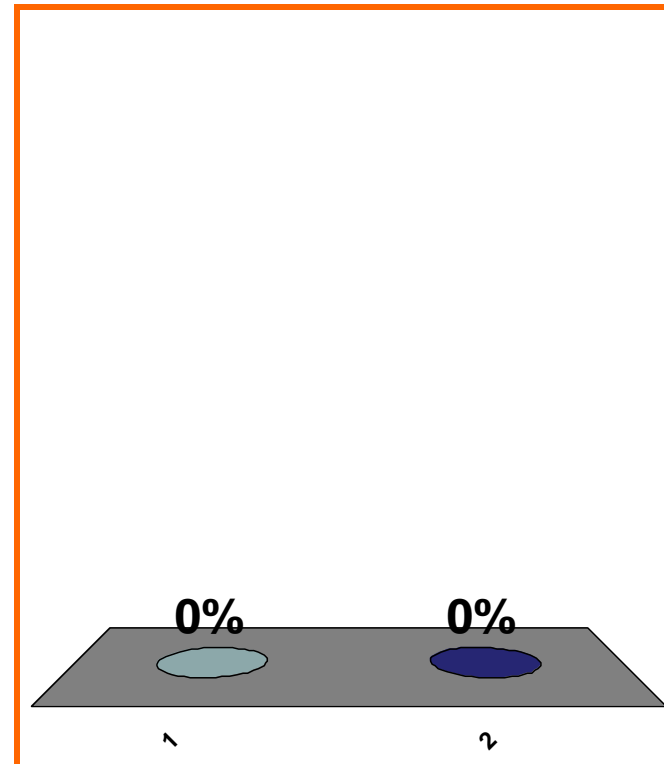
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

T or F:

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

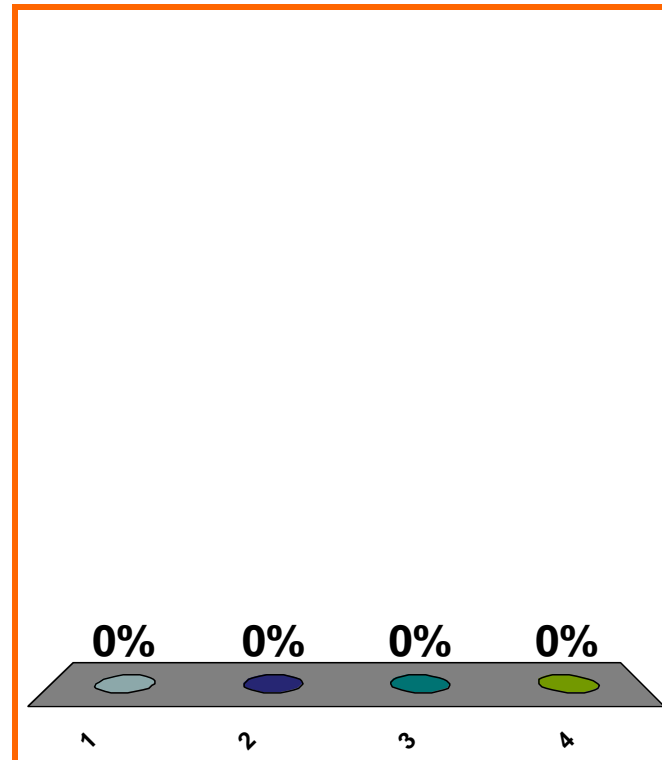
$$[d/dx][xe^y + y] = ??$$

(a) $e^y + xe^y y' + y'$

(b) $e^y + xe^y + 1$

(c) $e^y + xe^y + y'$

(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										

$$\begin{aligned}
 [d/dx][xe^y + y] &= e^y + xe^y y' + y' \\
 &= e^y + (xe^y + 1)y'
 \end{aligned}$$

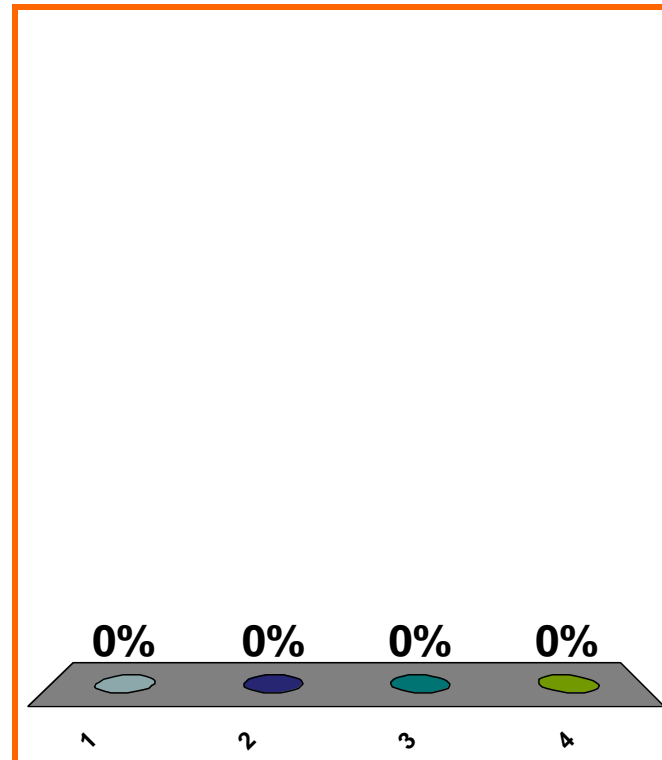
$$\begin{aligned}
 xe^y + y &= 1 \\
 y' &= ??
 \end{aligned}$$

(a) $(1 - e^y)/(xe^y + 1)$

(b) $e^y/(xe^y + 1)$

(c) $-e^y/(xe^y + 1)$

(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										

$$y' = -e^y / (xe^y + 1)$$

$$xe^y + y = 1$$

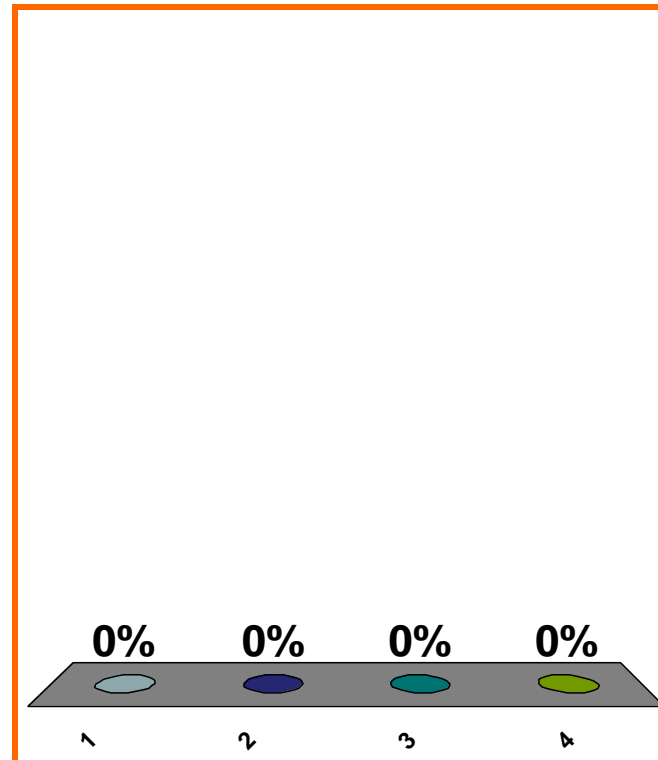
slope at (0, 1)?

(a) $-e$

(b) 0

(c) -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										

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

$$g = f^{-1}$$

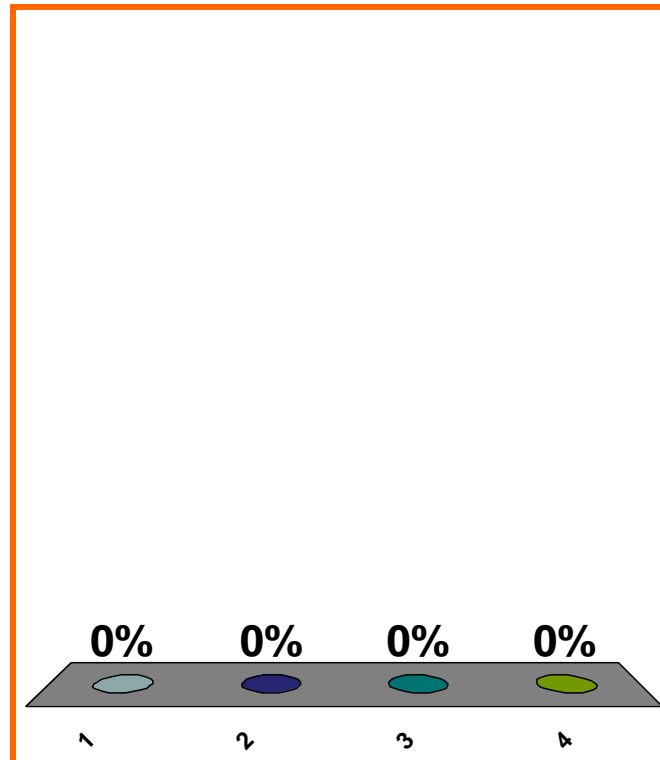
$$g(7) = ??, \quad g'(7) = ??$$

(a) 8, $-1/4$

(b) 8, $1/7$

(c) not enough information

(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										

$$g = f^{-1}$$

$$f(6) = 9, f'(6) = 1/4$$

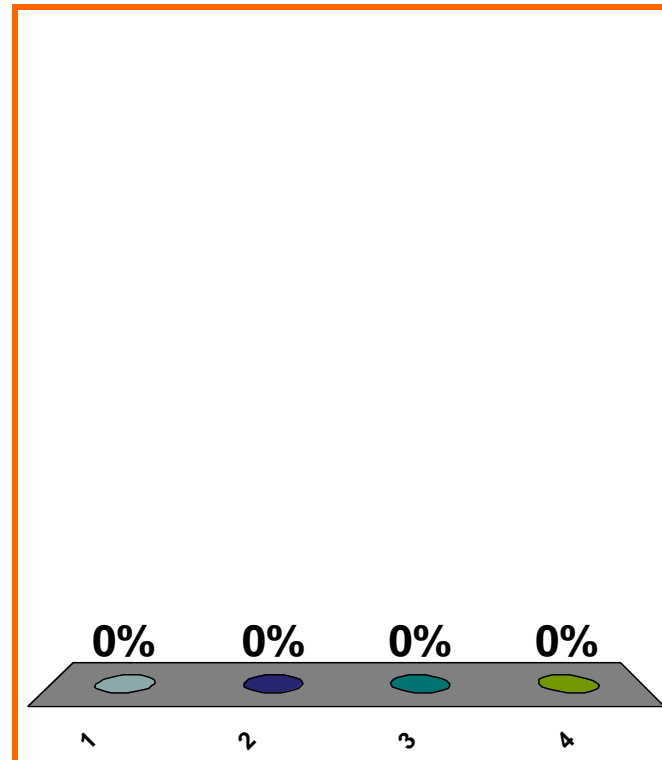
$$g'(6) = ??$$

(a) 1/2

(b) 4

(c) not enough information

(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										

$$\left[\frac{d}{dx} \right] [(\cos y) + 2y^3] = ??$$

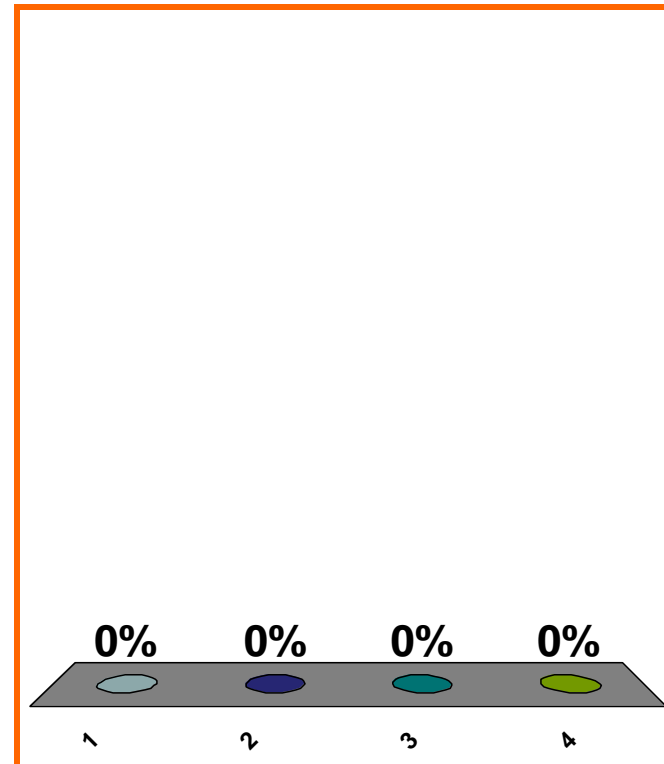
(a) $-(\sin y) + 6y^2$

(b) $-(\sin y') + 6(y')^2$

(c) $-(\sin y)y' + 6y^2$

(d) none of the above

Correct answer: $-(\sin y)y' + 6y^2y'$



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										

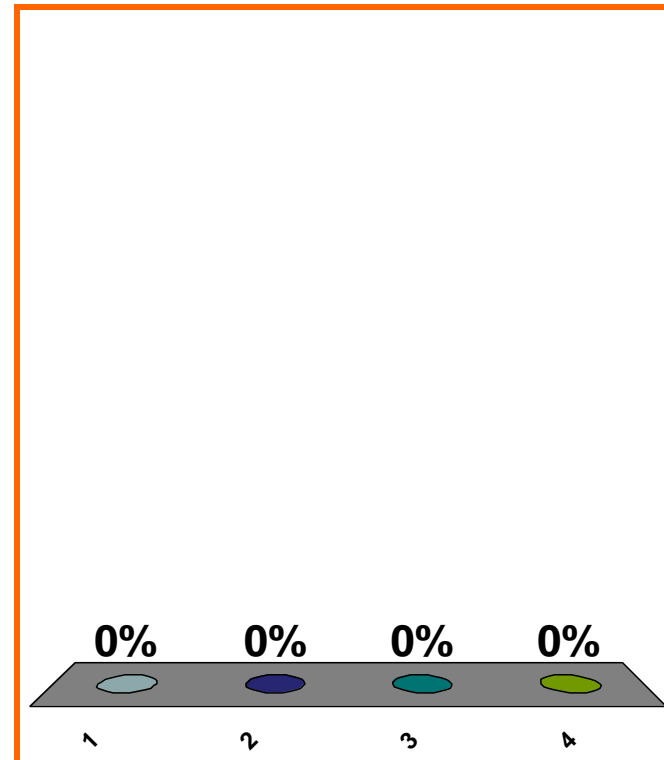
$$[d/dx][\tan(xy)] = ??$$

(a) $-\sec^2(xy)[y + xy']$

(b) $\sec^2(xy)[y + xy']$

(c) $-\sec^2(xy)[y + x]$

(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										

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

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

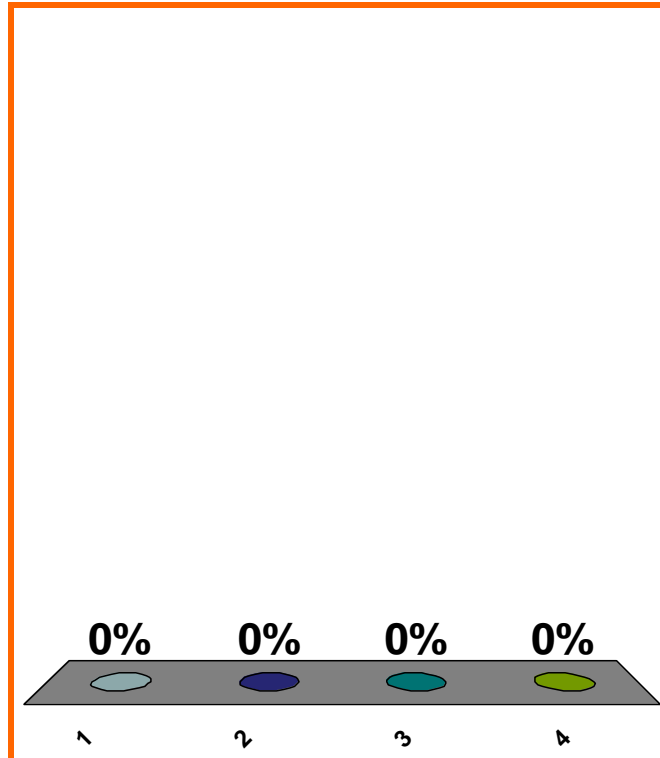
(a) $\frac{1}{1+(e^x)^2}$

(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										

$$f(g(x)) = x$$

$$[f'(g(x))][g'(x)] = 1$$

$$[f'(g(7))][g'(7)] = 1$$

$$g = f^{-1}$$

$$f(4) = 7, g(7) = 4$$

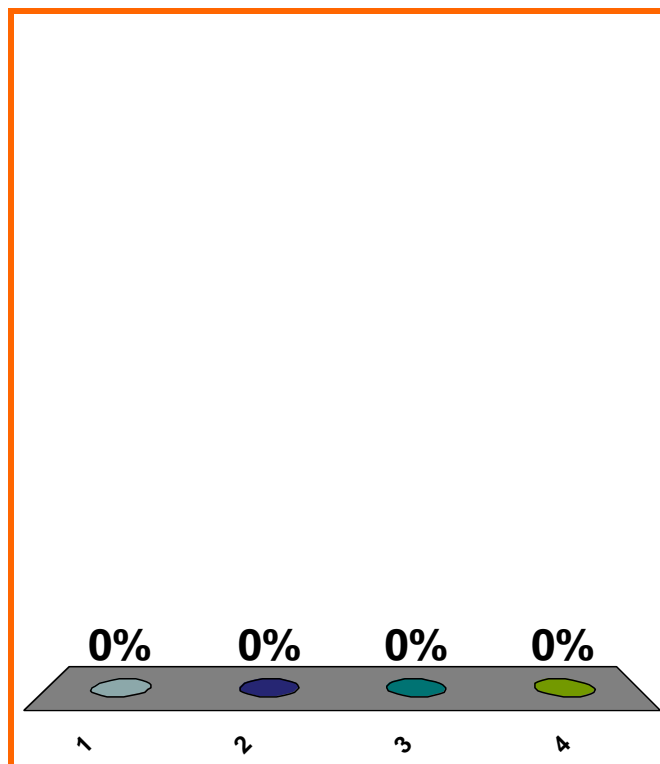
$$f'(4) = 2, g'(7) = ??$$

(a) 1/2

(b) 4

(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										

0 of 5

Topic 0440

0 pts

35

$$f(g(x)) = x$$

$$[f'(g(x))][g'(x)] = 1$$

$$[f'(g(7))][g'(7)] = 1$$

$$g = f^{-1}$$

$$f(4) = 7, g(7) = 4$$

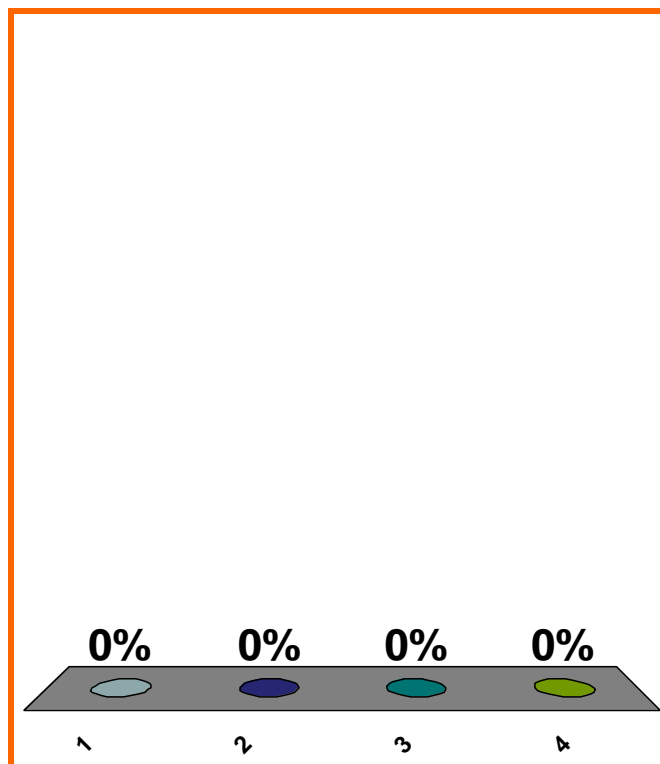
$$f'(4) = 2, g'(7) = ??$$

(a) 1/2

(b) 4

(c) not enough information

(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										

$$g = f^{-1}$$

$$f(6) = 9, f'(6) = 1/4$$

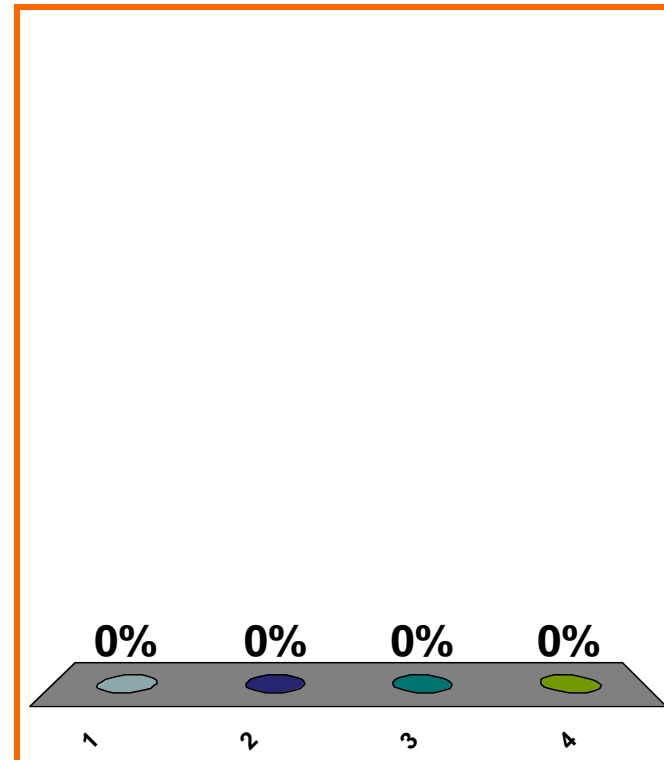
$$g'(9) = ??$$

(a) 1/2

(b) 4

(c) not enough information

(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										

$$f(4) = -6, \quad f'(4) = 8$$

$$g = f^{-1}$$

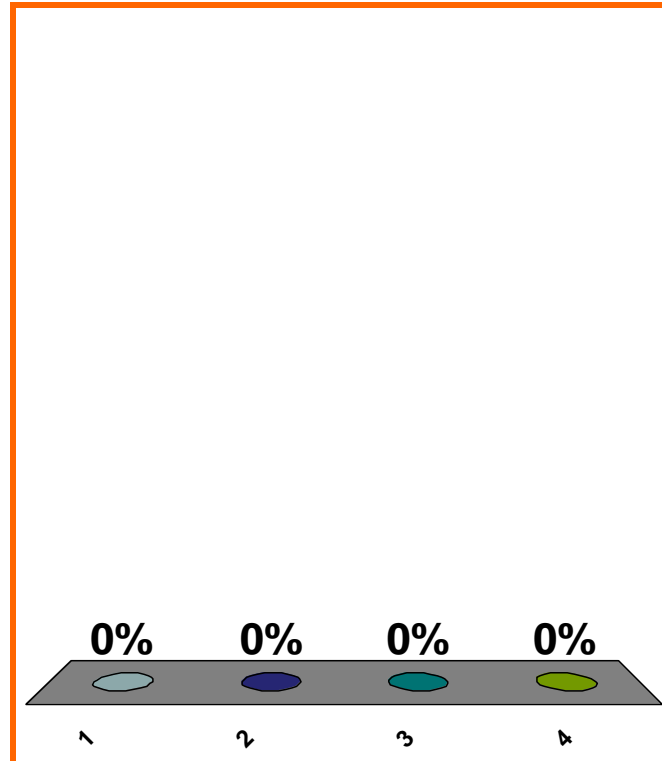
$$g(-6) = ??, \quad g'(-6) = ??$$

(a) 4, 1/8

(b) 1/4, 1/8

(c) not enough information

(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										

$$\ln(1 + [f(x)]) \quad x \xrightarrow{\sim} a \quad ??$$

provided $f(x) \xrightarrow{x \rightarrow a} 0$

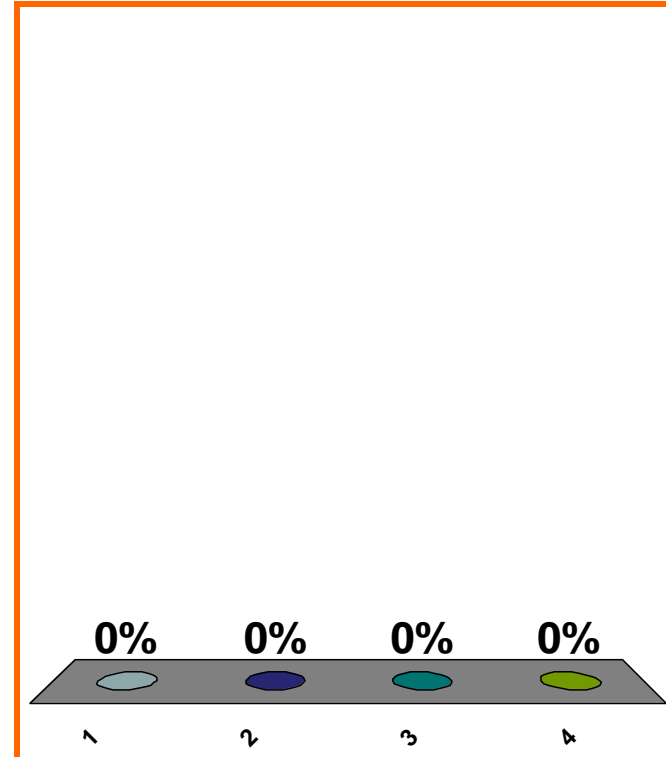
(a) 0

(b) $\ln[f(x)]$

(c) $1 + [f(x)]$

(d) none of the above

Correct answer: $f(x)$



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										

SAVE THE
SESSION
DATA

RETURN TO
PRESENTATION