

Calculus

F 21 September 2012

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

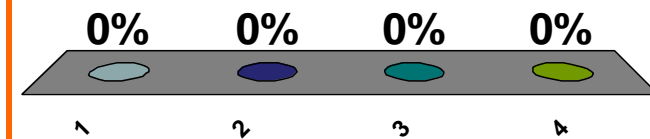
$$(a) x \approx 2 \Rightarrow f(x) \approx 7$$

$$\lim_{x \rightarrow 2} f(x) = 7$$

$$(b) x \approx 2, x \neq 2 \Rightarrow f(x) \approx 7$$

$$(c) x \approx 2, x \neq 2 \Rightarrow f(x) \approx 7, f(x) \neq 7$$

(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

0 of 5

Topic 0150

10 pts

5

$$P(x) = (x - 3)^7(x^2 + x + 4)$$
$$Q(x) = (x - 3)^8(5x^9 + 9x - 7)$$

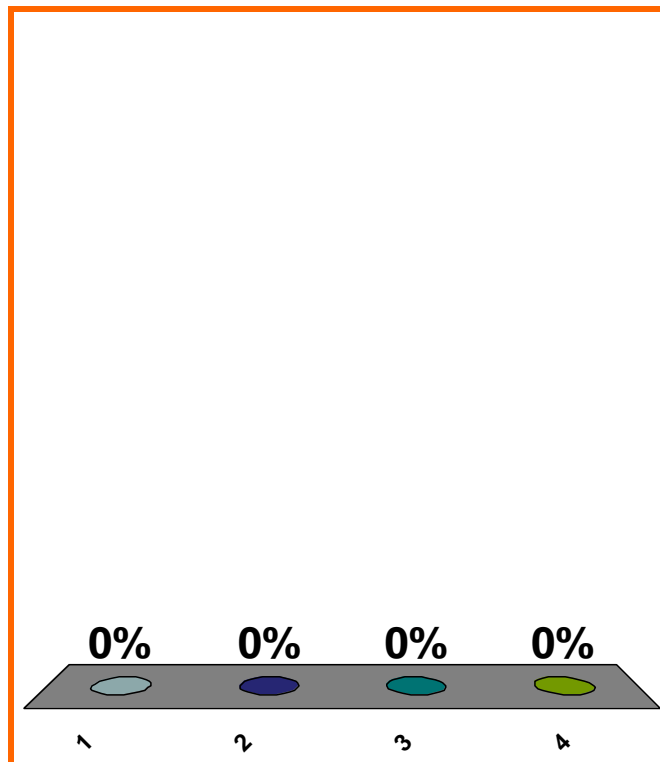
$$\lim_{x \rightarrow 3^+} \frac{P(x)}{Q(x)} = ??$$

(a) 0

(b) ∞

(c) $-\infty$

(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 0200

0 pts

6

$$P(x) = (x - 3)^7(x^2 + x + 4)$$

$$Q(x) = (x - 3)^8(5x^9 + 9x - 7)$$

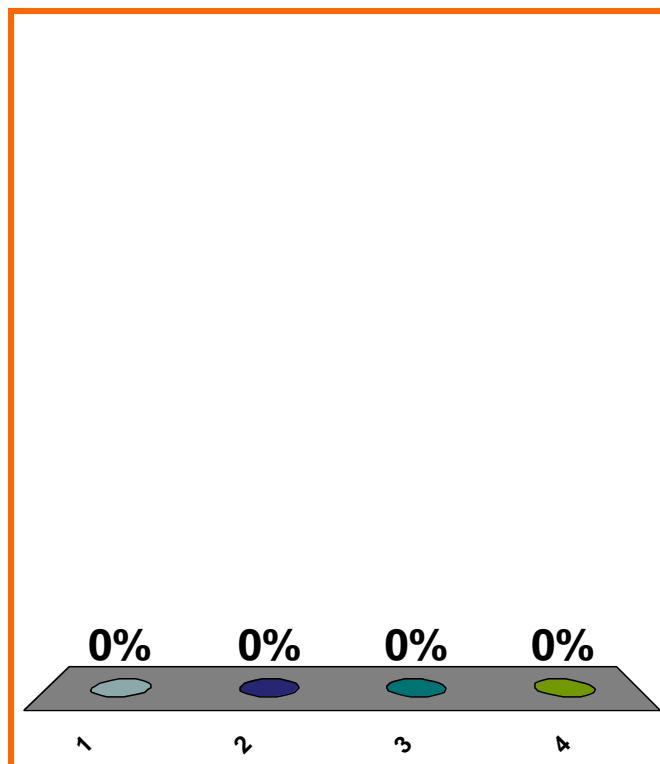
$$\lim_{x \rightarrow 3^-} \frac{P(x)}{Q(x)} = ??$$

(a) 0

(b) ∞

(c) $-\infty$

(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 0200

10 pts

7

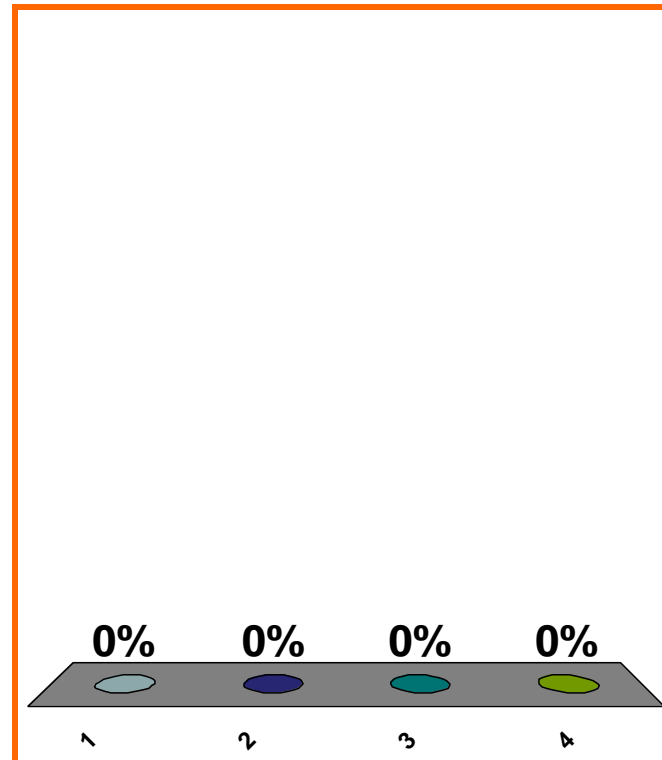
$$\sin x \underset{x \rightarrow 0}{\sim} ??$$

(a) x

(b) $\cos x$

(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

0 of 5

Topic 0230

0 pts

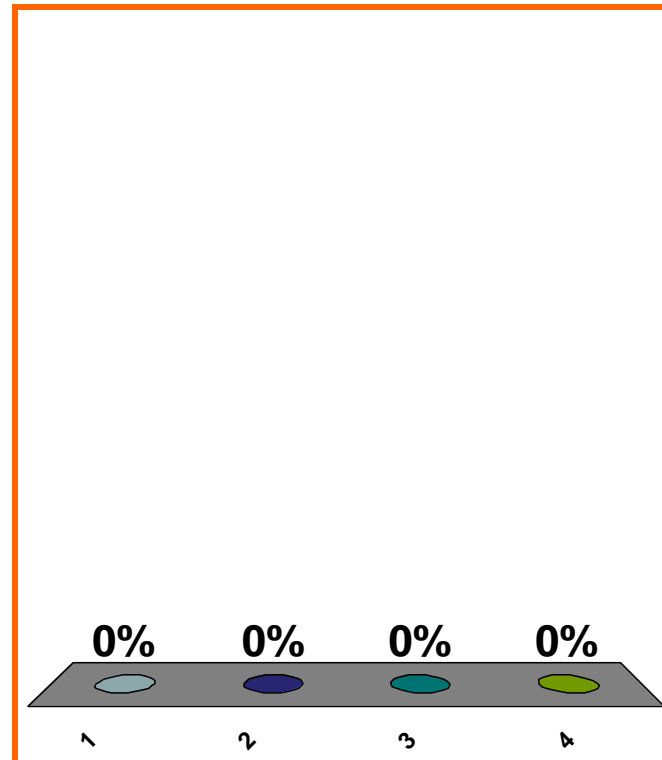
$$[\sin x] - x \quad x \sim 0 \quad ??$$

(a) $-x^3/6$

(b) 1

(c) 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

0 of 5

Topic 0230

0 pts

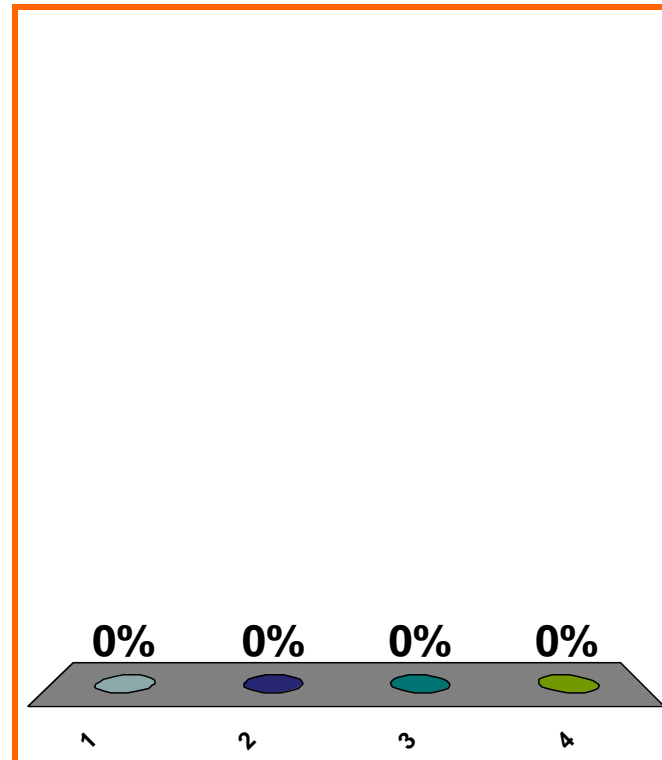
$$[\cos x] - 1 \quad x \sim 0 \quad ??$$

(a) $-x^2/2$

(b) 1

(c) $x^2/2$

(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 0230

0 pts

10

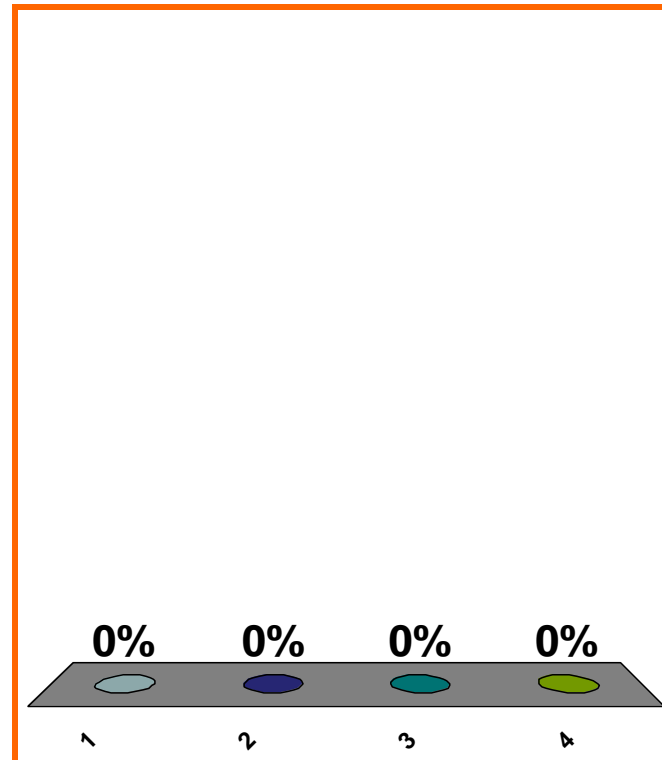
$$\lim_{x \rightarrow 0} \frac{3x^3 + 2x}{\sin x} = ??$$

(a) 0

(b) 2

(c) 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

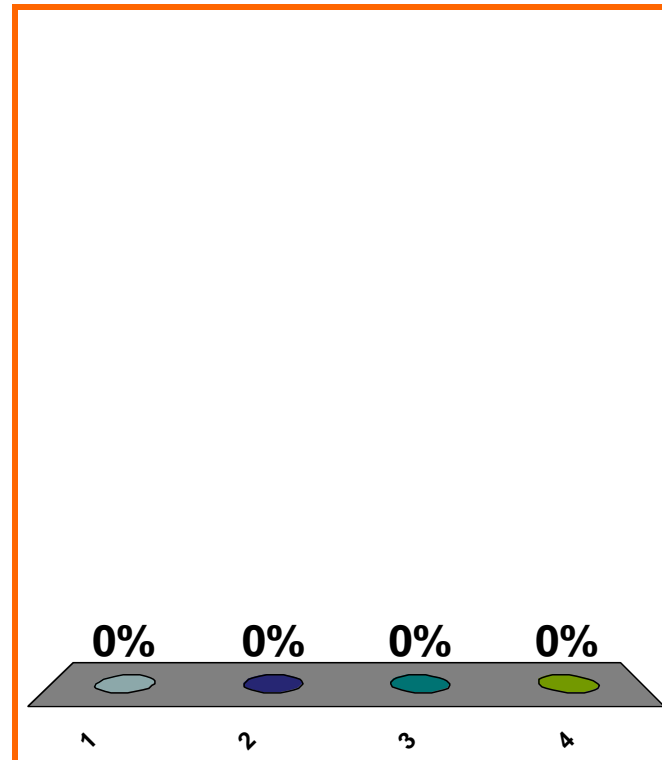
$$\lim_{t \rightarrow 0^+} \left[\frac{\sqrt{4t^6 + 9t^4}}{t(\sin t)} \right] = ??$$

(a) DNE

(b) ∞

(c) 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

$$x - \sin x \underset{x \rightarrow 0}{\sim} x^3/6$$

$$\lim_{x \rightarrow 0} \left[\frac{x^3 + x^4}{x - \sin x} \right] = ??$$

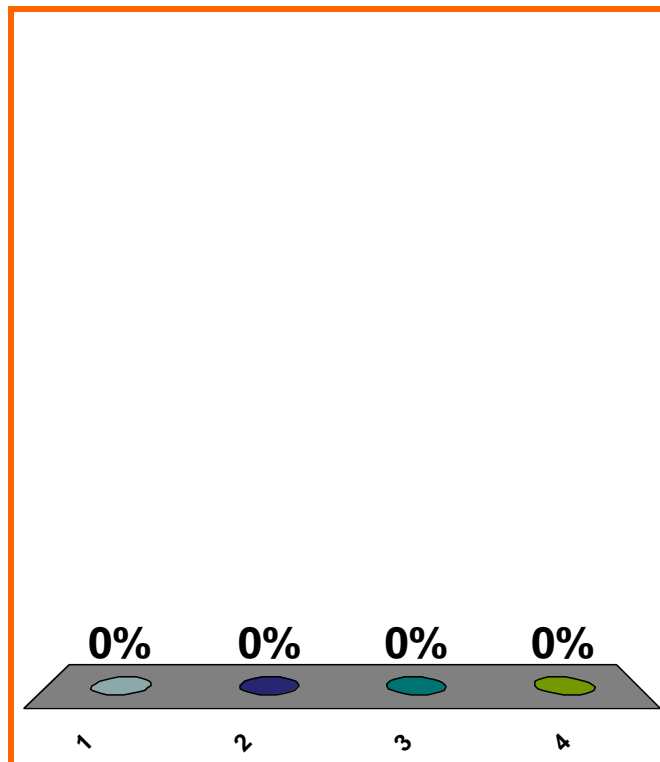
(a) DNE

(b) $-1/6$

(c) $1/6$

(d) none of the above

Correct answer: 6



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

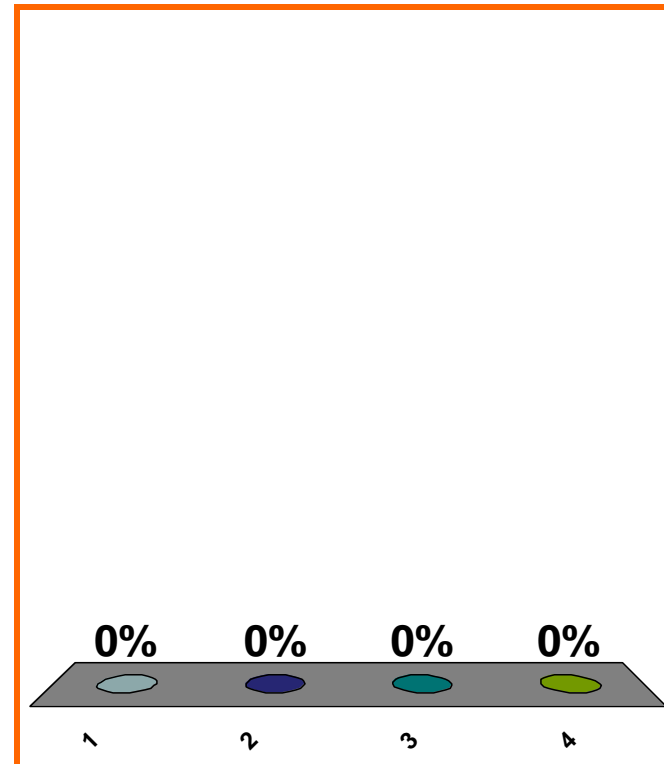
$$6x^5 + 7x^4 - 8x^3 \quad x \rightarrow 0 \quad ??$$

(a) $6x^5$

(b) $7x^4$

(c) $-8x^3$

(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

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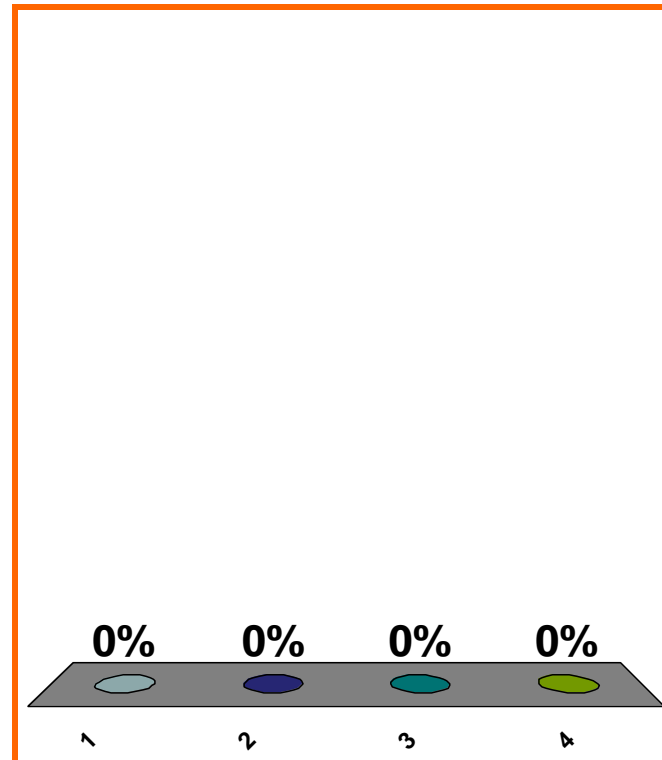
$$6x^5 + 7x^4 - 8x^3 \quad x \rightarrow \infty \quad ??$$

(a) $6x^5$

(b) $7x^4$

(c) $-8x^3$

(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

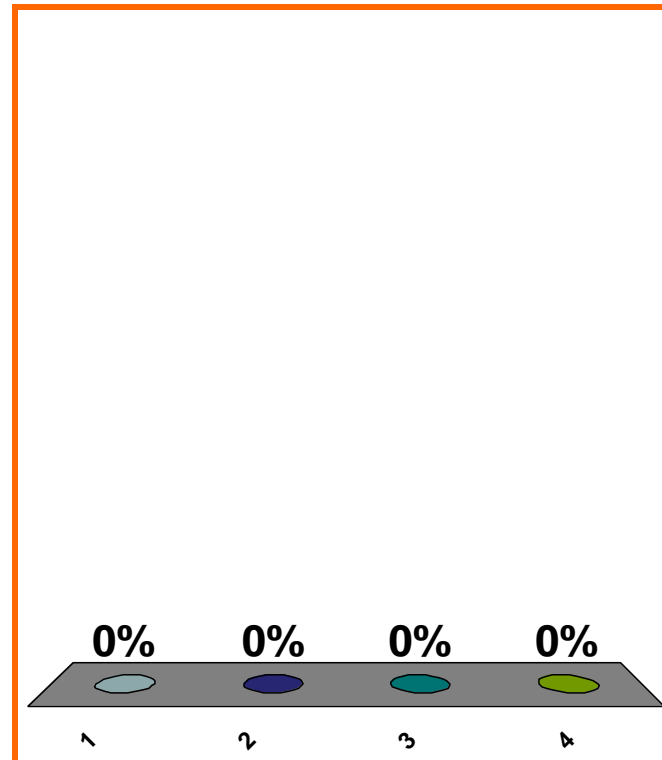
$$\lim_{x \rightarrow 0} \left[\frac{6x^5 + 7x^4 - 8x^3}{7x^5 - 2x^4 + 9x^3} \right] = ??$$

(a) DNE

(b) $-8/9$

(c) $6/7$

(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

0 of 5

Topic 0200

10 pts

16

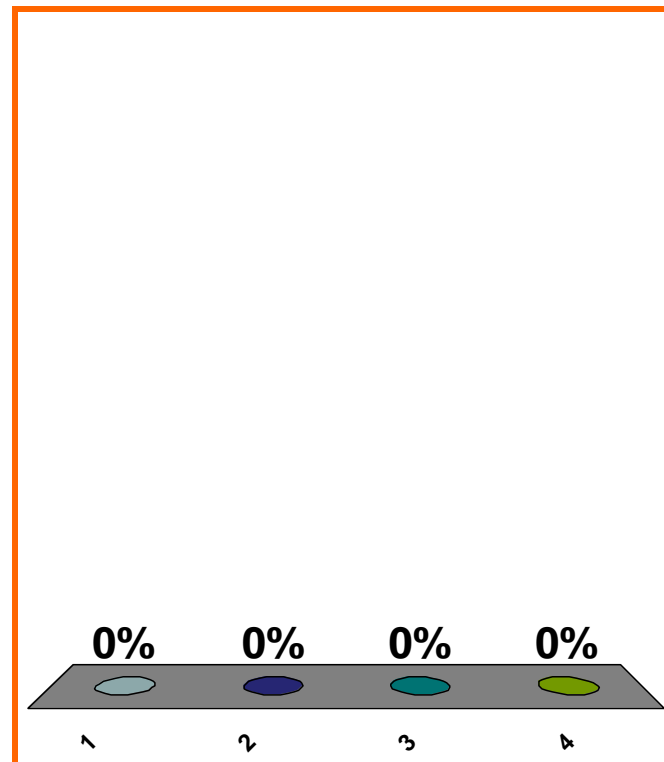
$$\lim_{x \rightarrow \infty} \left[\frac{6x^5 + 7x^4 - 8x^3}{7x^5 - 2x^4 + 9x^3} \right] = ??$$

(a) DNE

(b) $-8/9$

(c) $6/7$

(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

$$\sqrt{x^2 + 1} \sim \text{??}$$

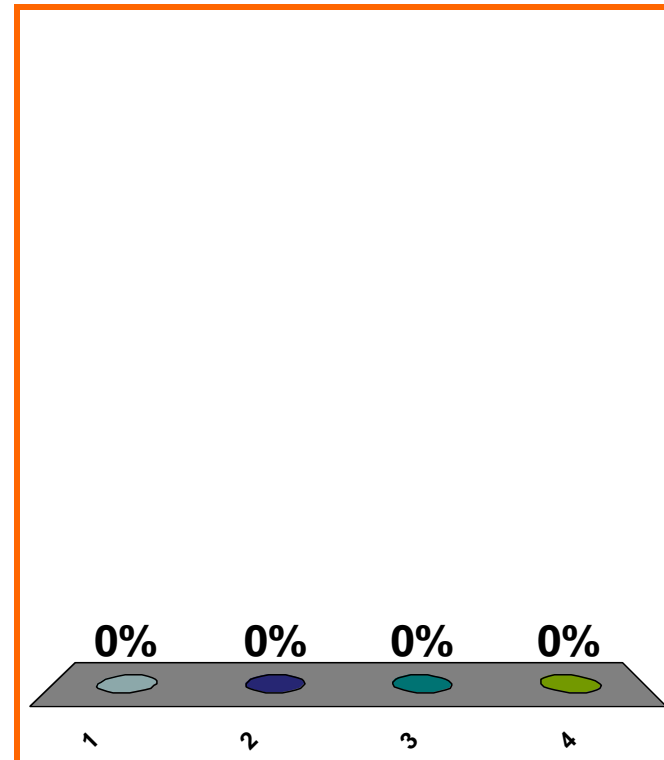
$x \rightarrow -\infty$

(a) 1

(b) x

(c) $-x$

(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

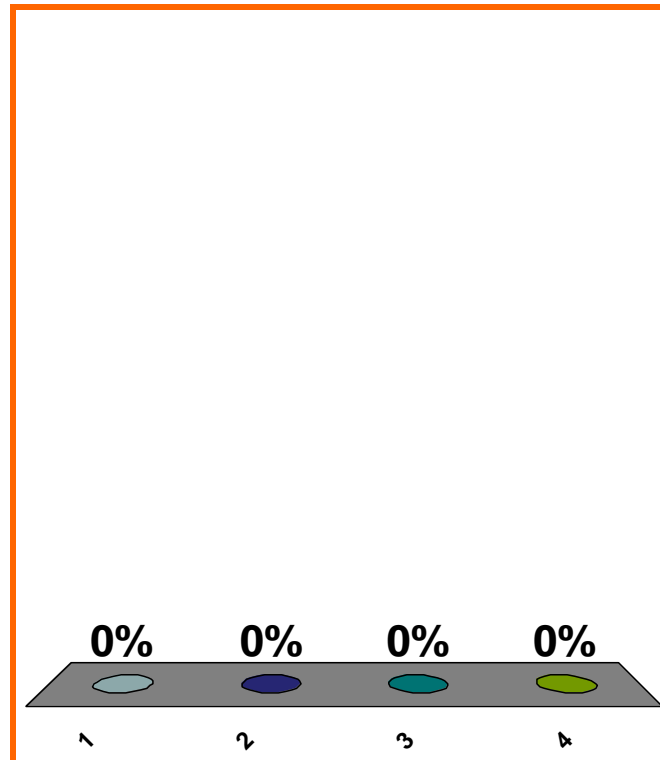
$$\lim_{x \rightarrow -\infty} \left[\frac{\sqrt{x^2 + 1}}{3x} \right] = ??$$

(a) 1/3

(b) -1/3

(c) DNE

(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

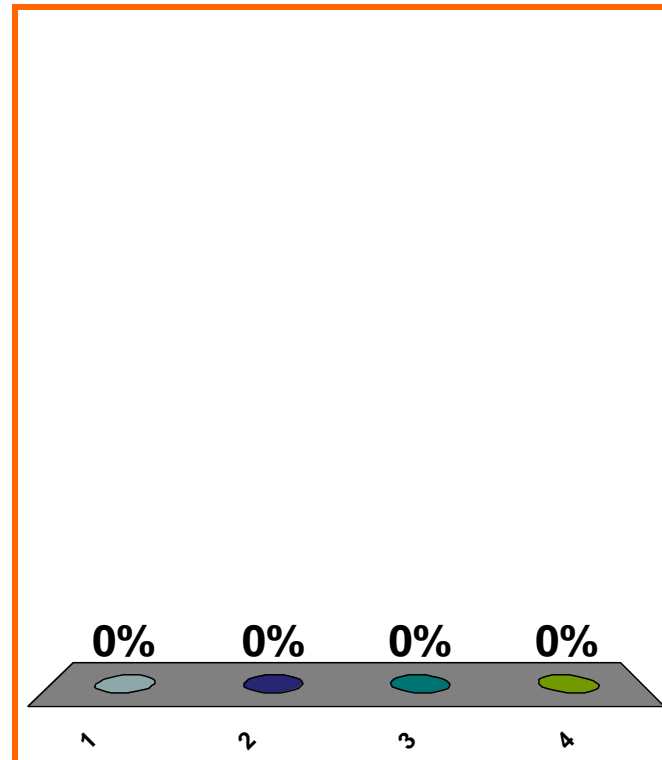
$$\lim_{x \rightarrow 5} \left(\frac{3x^3 - 2x + 8}{x - 4} \right)$$

(a) $(3)(5^3) - (2)(5) + 8$

(b) $-\infty$

(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

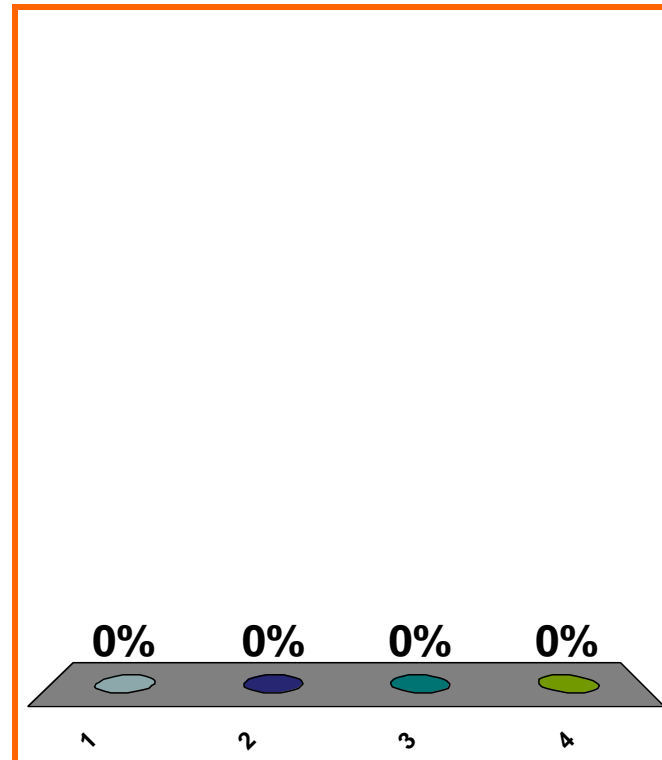
$$\lim_{x \rightarrow 5^+} \left(\frac{3x^3 - 2x + 8}{x - 5} \right)$$

(a) $(3)(5^3) - (2)(5) + 8$

(b) $-\infty$

(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

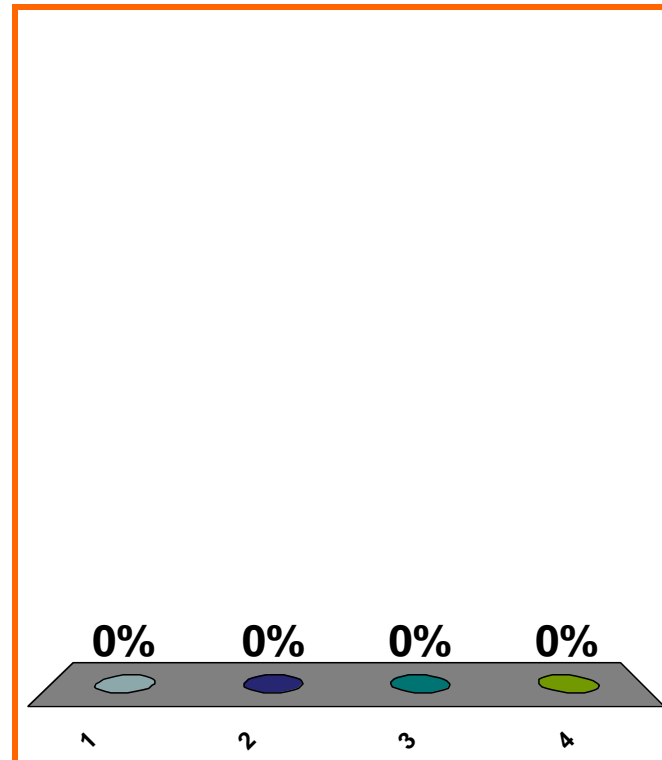
$$\lim_{x \rightarrow 5^-} \left(\frac{3x^3 - 2x + 8}{x - 5} \right)$$

(a) $(3)(5^3) - (2)(5) + 8$

(b) $-\infty$

(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 0250

0 pts

22

$$\lim_{x \rightarrow 5} \left(\frac{3x^3 - 2x + 8}{x - 5} \right)$$

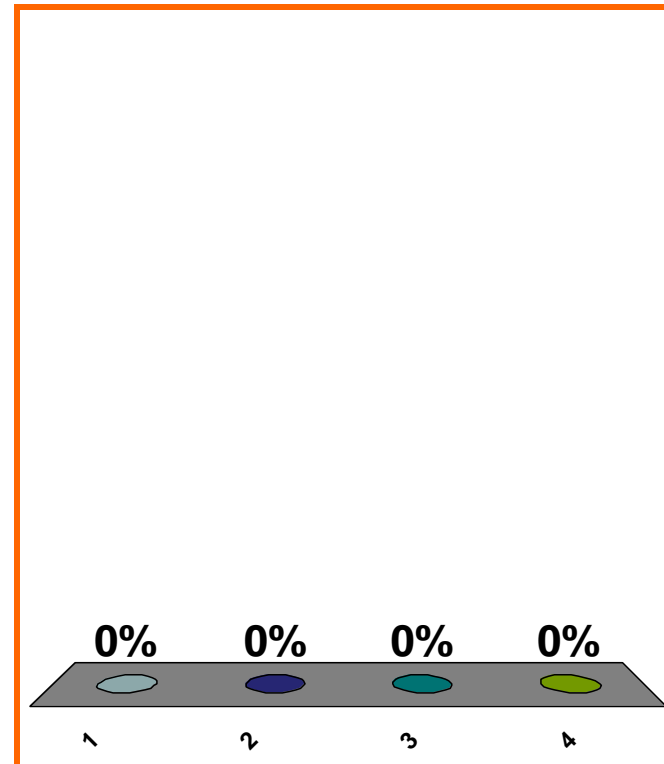
(a) $(3)(5^3) - (2)(5) + 8$

(b) $-\infty$

(c) ∞

(d) none of the above

Correct answer: DNE



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

$$\lim_{x \rightarrow \infty} \left[\frac{100x^3 + 2x - 1}{x^4 - x^3 + x^2 + 1} \right] = ??$$

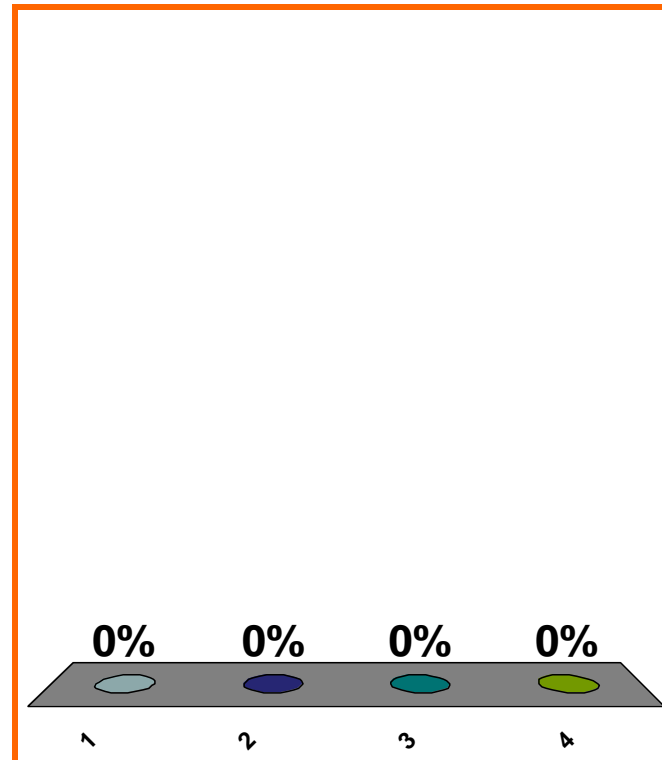
(a) ∞

(b) $-\infty$

(c) 100

(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

$$\lim_{x \rightarrow -\infty} \left[\frac{100x^3 + 2x - 1}{x^4 - x^3 + x^2 + 1} \right] = ??$$

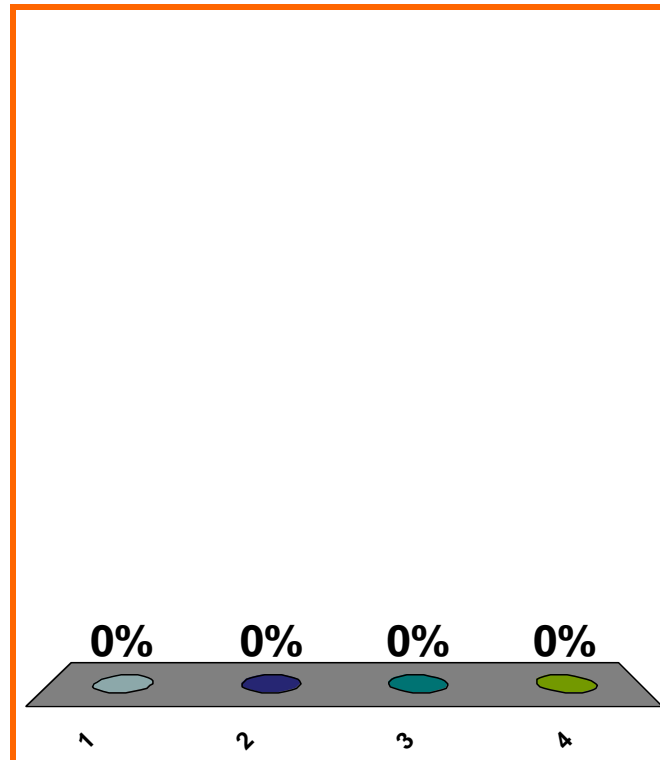
(a) ∞

(b) $-\infty$

(c) 100

(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

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Topic 0250

0 pts

25

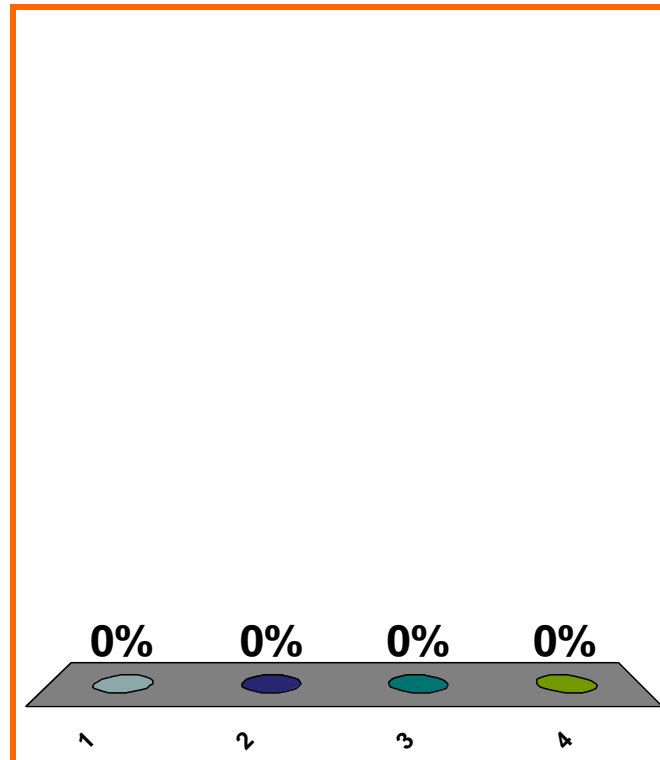
$$\lim_{x \rightarrow -\infty} \left[\frac{100x^3 + 2x - 1}{x^3 + x^2 + 1} \right] = ??$$

(a) ∞

(b) $-\infty$

(c) 100

(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

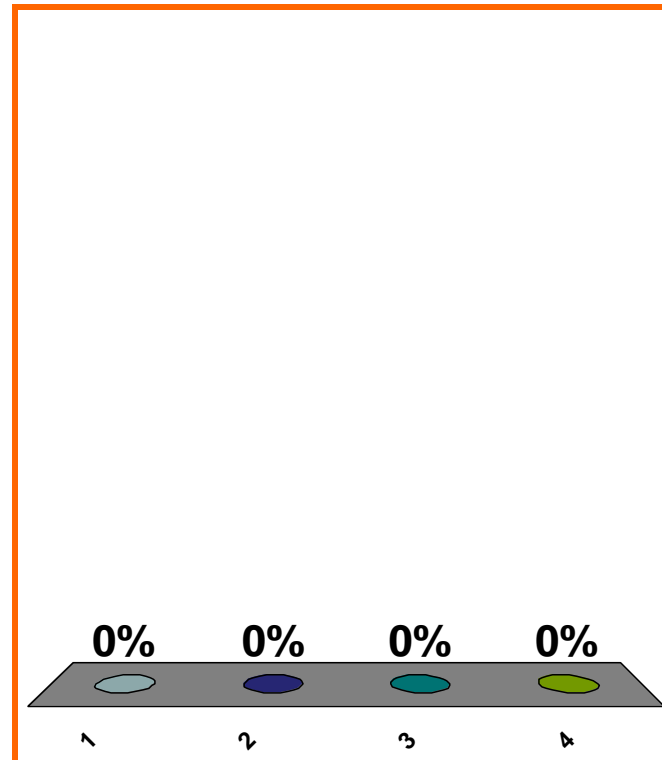
$$\lim_{x \rightarrow \infty} \left[\frac{100x^3 + 2x - 1}{x^3 + x^2 + 1} \right] = ??$$

(a) ∞

(b) $-\infty$

(c) 100

(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 0250

0 pts

27

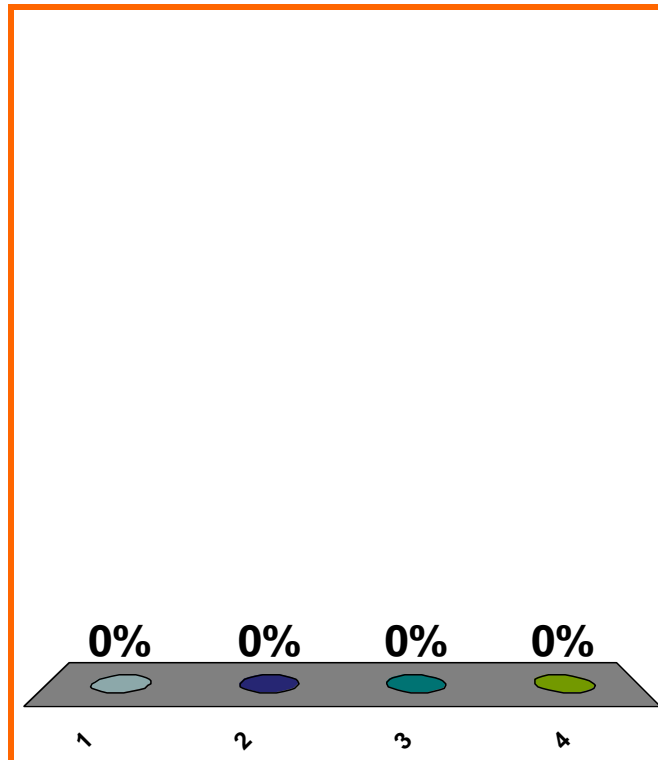
$$\lim_{x \rightarrow \infty} \left[\frac{100x^3 + 2x - 1}{x^2 + 1} \right] = ??$$

(a) ∞

(b) $-\infty$

(c) 100

(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

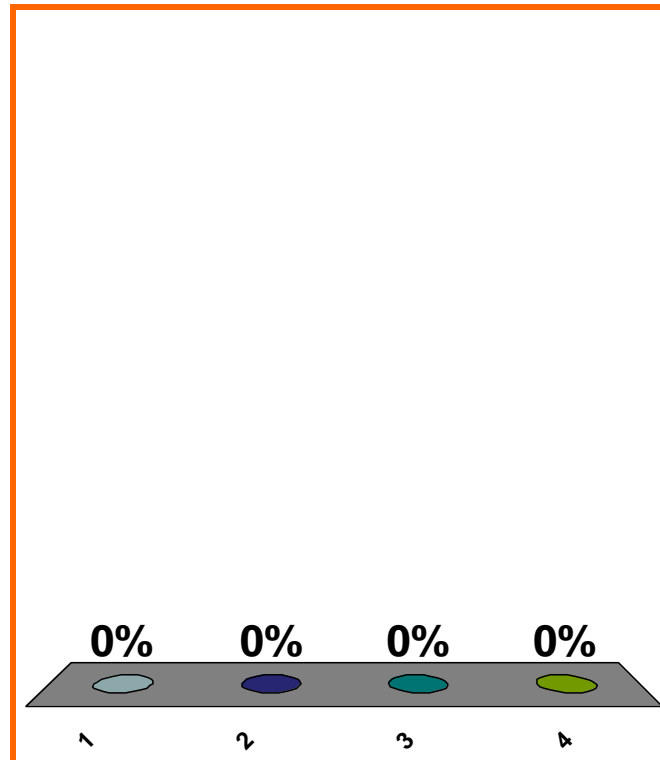
$$\lim_{x \rightarrow -\infty} \left[\frac{100x^3 + 2x - 1}{x^2 + 1} \right] = ??$$

(a) ∞

(b) $-\infty$

(c) 100

(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

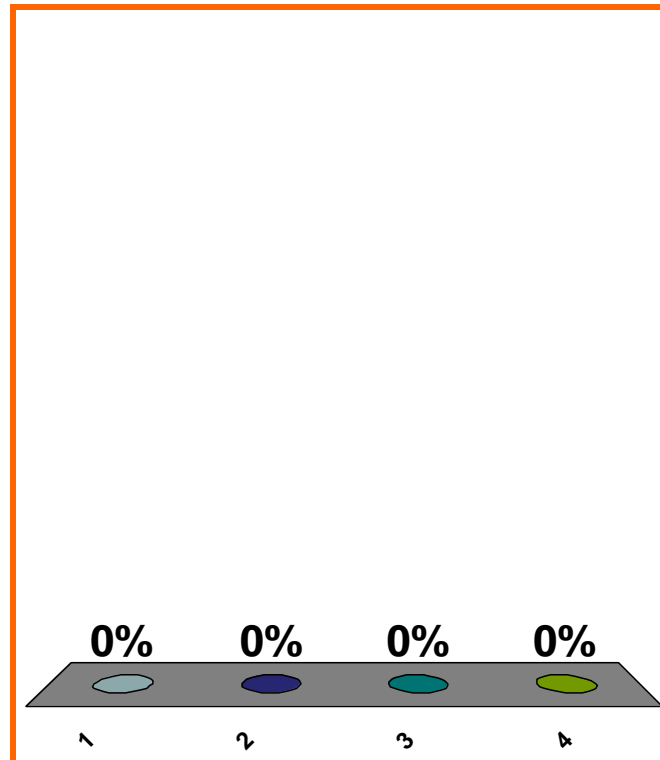
$$\lim_{x \rightarrow -\infty} \left[\frac{100x^3 + 2x - 1}{x + 1} \right] = ??$$

(a) ∞

(b) $-\infty$

(c) 100

(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

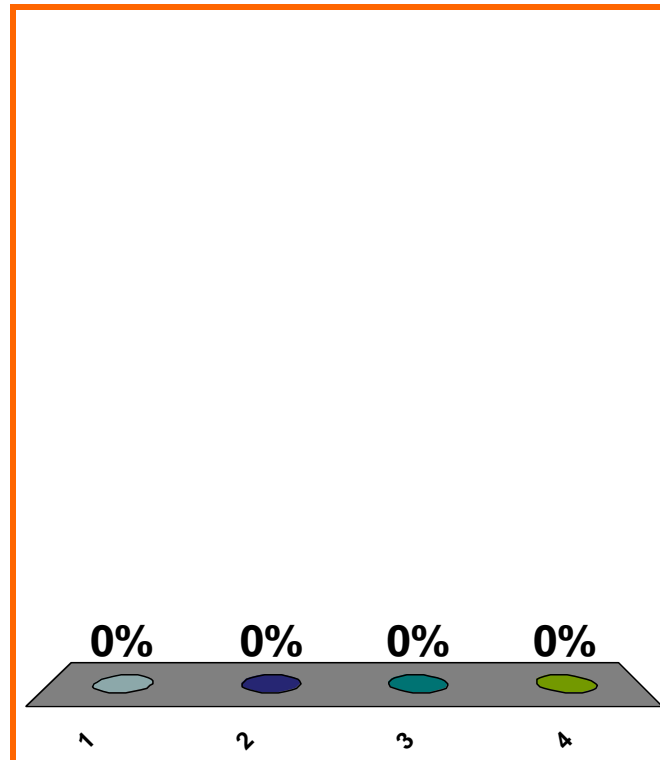
$$\lim_{x \rightarrow \infty} \left[\frac{100x^3 + 2x - 1}{x + 1} \right] = ??$$

(a) ∞

(b) $-\infty$

(c) 100

(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

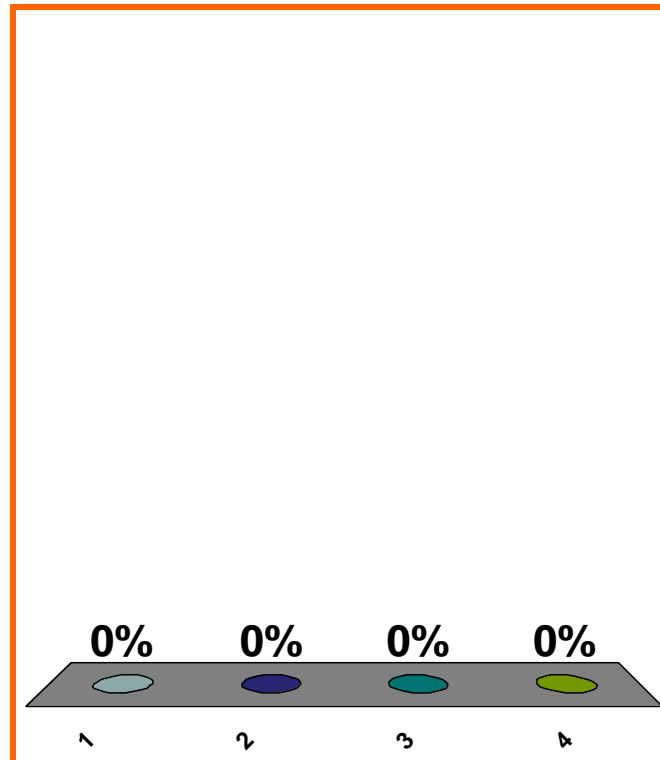
$$e^{\ln 7} = ??$$

(a) 7

(b) DNE

(c) $e^{7/2}$

(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 0260

10 pts

32

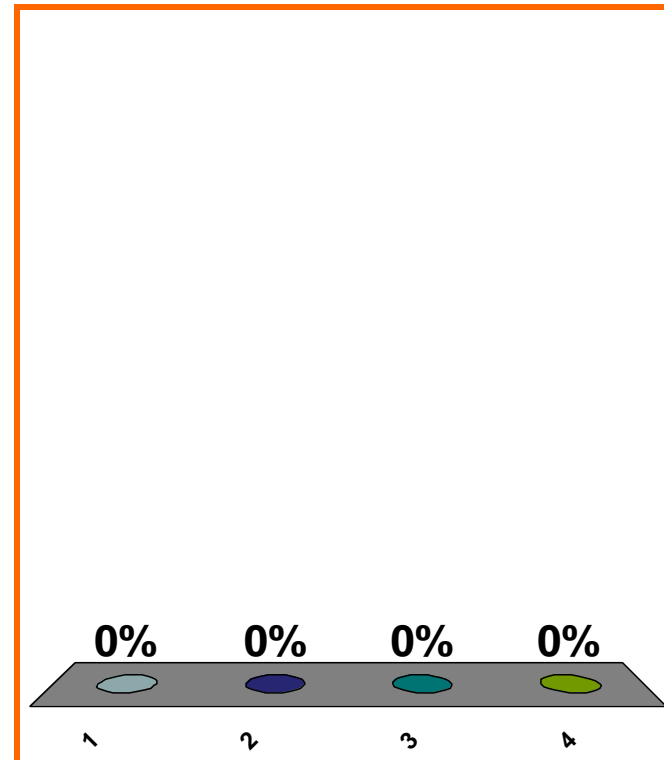
$$\ln 1 = ??$$

(a) 1

(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	31	32	33	34	35	36	37	38	39	40

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Topic 0260

0 pts

33

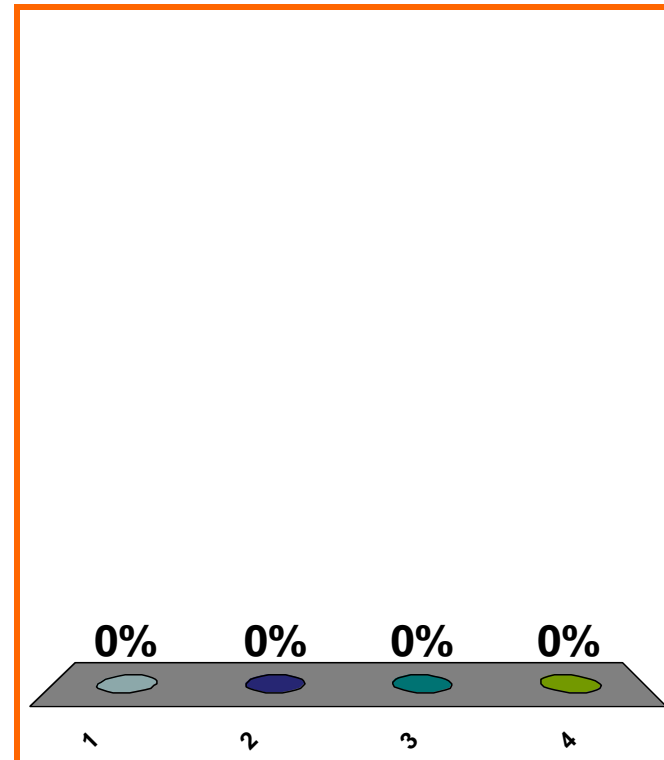
$$\log_{10}(100) = ??$$

(a) 0

(b) 1

(c) 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

$$\log_2(16) = ??$$

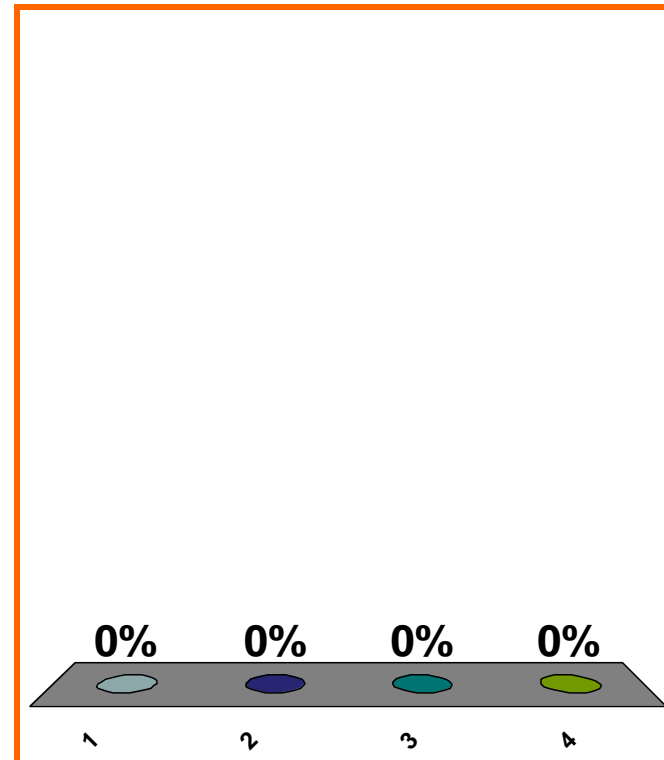
(a) 3

(b) 2

(c) 1

(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

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Topic 0260

0 pts

35

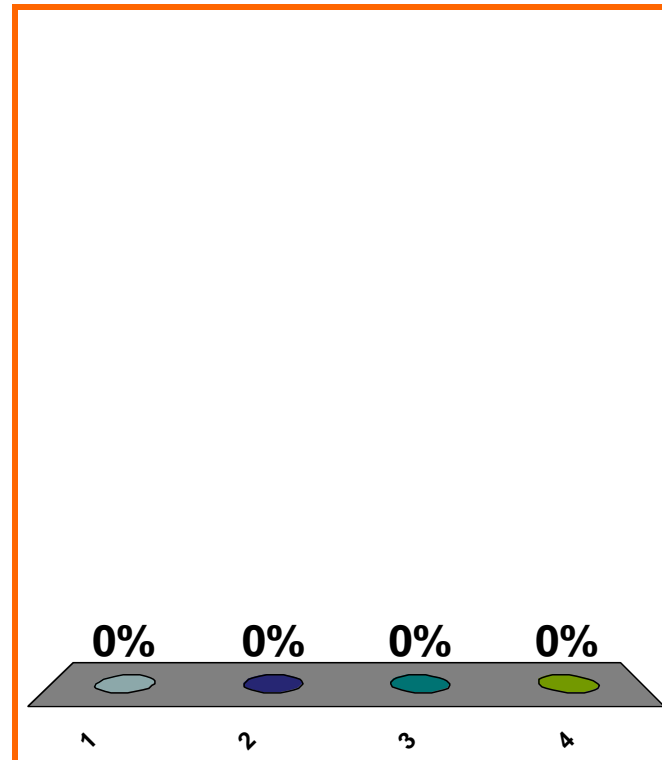
$$\log_2(1) = ??$$

(a) 0

(b) -1

(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	31	32	33	34	35	36	37	38	39	40

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Topic 0260

0 pts

36

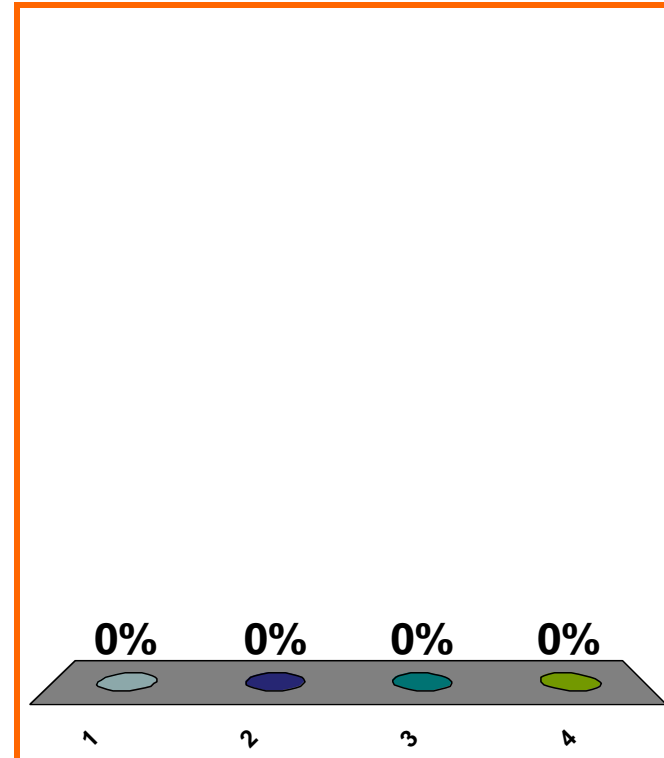
$$2^0 = ??$$

(a) 0

(b) -1

(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	31	32	33	34	35	36	37	38	39	40

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Topic 0260

0 pts

37

$$\ln 0 = ??$$

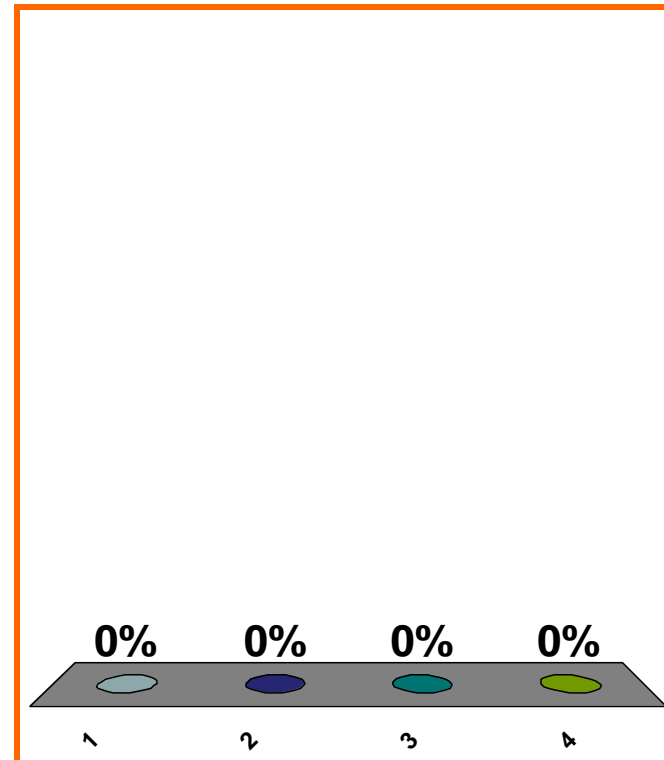
(a) 0

(b) -1

(c) 1

(d) none of the above

Correct answer: DNE



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

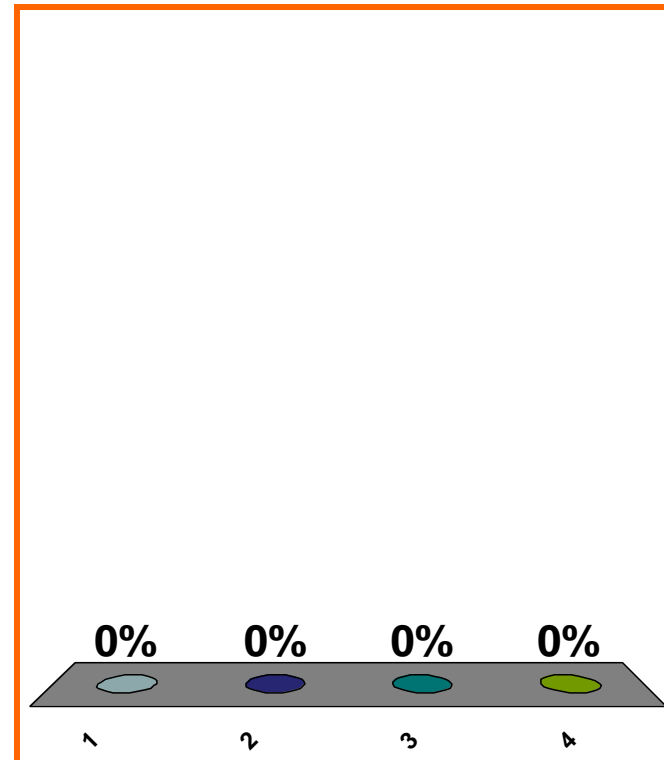
$$\ln(e^5) = ??$$

(a) -5

(b) 5

(c) $1/5$

(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

0 of 5

Topic 0260

0 pts

39

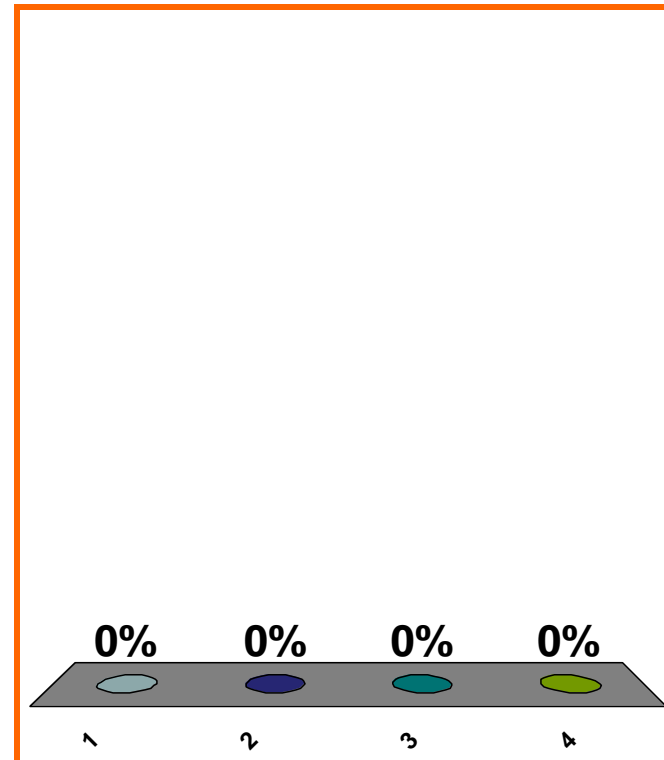
$$\log_8(1/8) = ??$$

(a) 0

(b) 1

(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	31	32	33	34	35	36	37	38	39	40

0 of 5

Topic 0260

0 pts

40

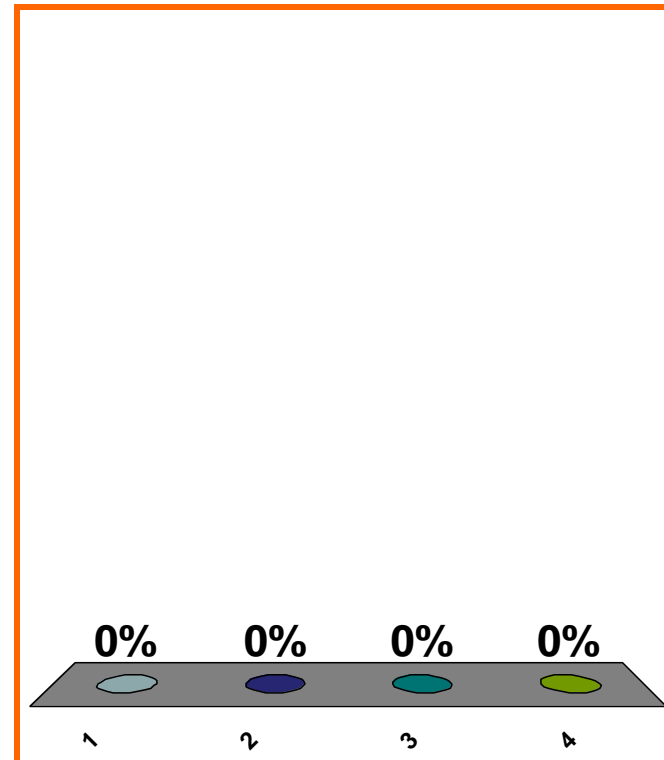
$$\log_8(8) = ??$$

(a) 0

(b) 1

(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	31	32	33	34	35	36	37	38	39	40

0 of 5

Topic 0260

0 pts

41

$$\log_{10}(0.01) = ??$$

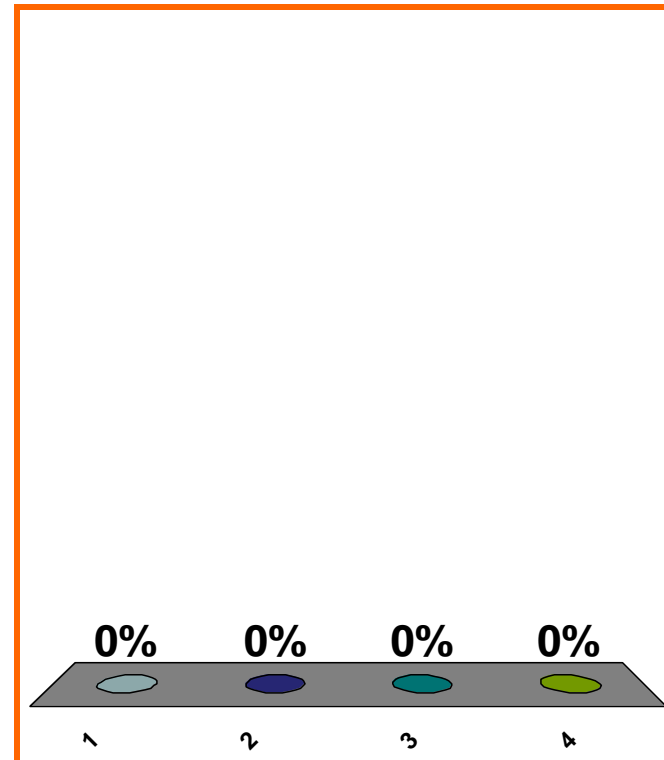
(a) 0

(b) 1

(c) -1

(d) none of the above

Correct answer: -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

SAVE THE
SESSION
DATA

RETURN TO
PRESENTATION

additivity of error

homogeneous vs. inhomogeneous

homog. linear polynomial in x, y, z

LOOK AHEAD

d/dt and d/ds

differentiation

differentiation w.r.t. x of expr. with y

log diff