

Calculus

M 23 January 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

tangent slopes for $y = x^2$
additivity of error

LOOK AHEAD

differentiate polynomials
differentiate trig functions
differentiate polynomials
differentiate all 6 trig functions

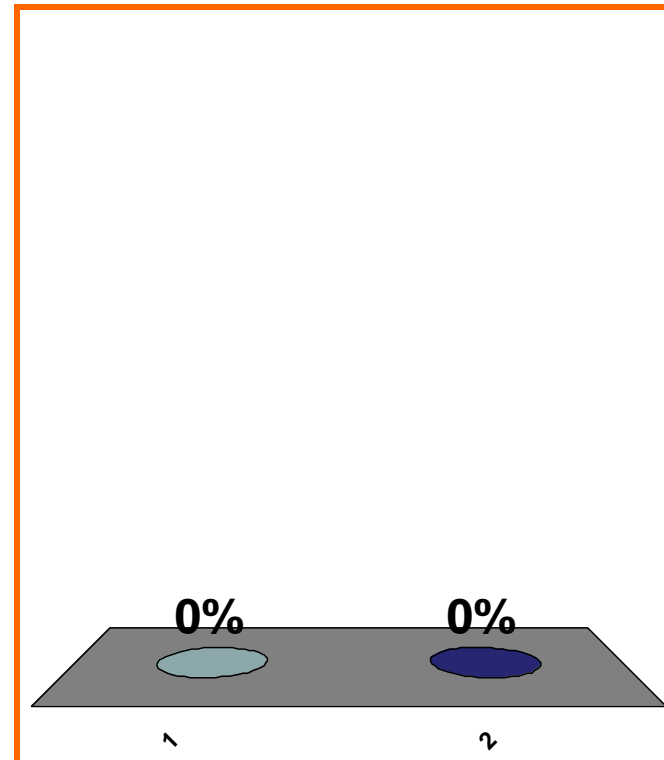
QUIZ
FOLLOWS

T or F:

$$\forall x < 0, \sqrt{x^2} = -x$$

(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 0050

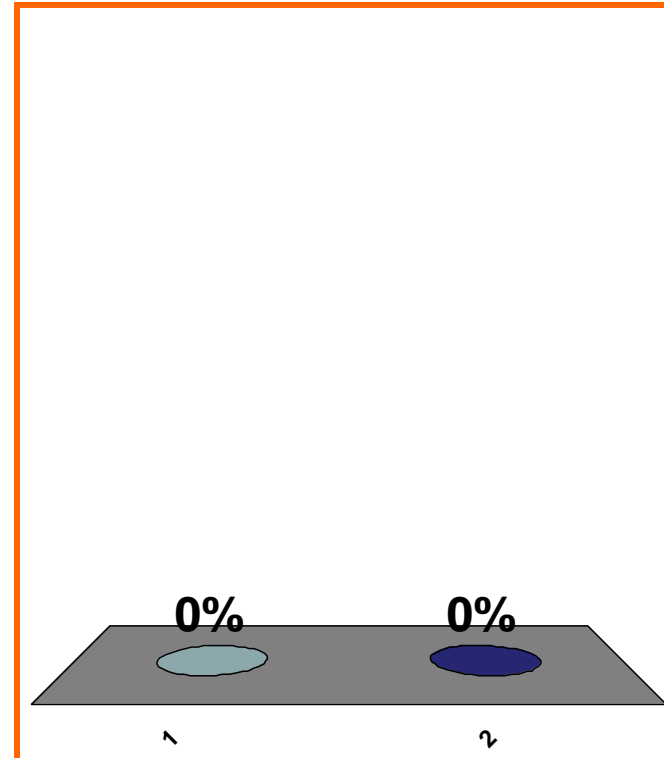
0 pts

6

T or F: $\frac{x^9}{x^4} = x^5$

(a) True

(b) False

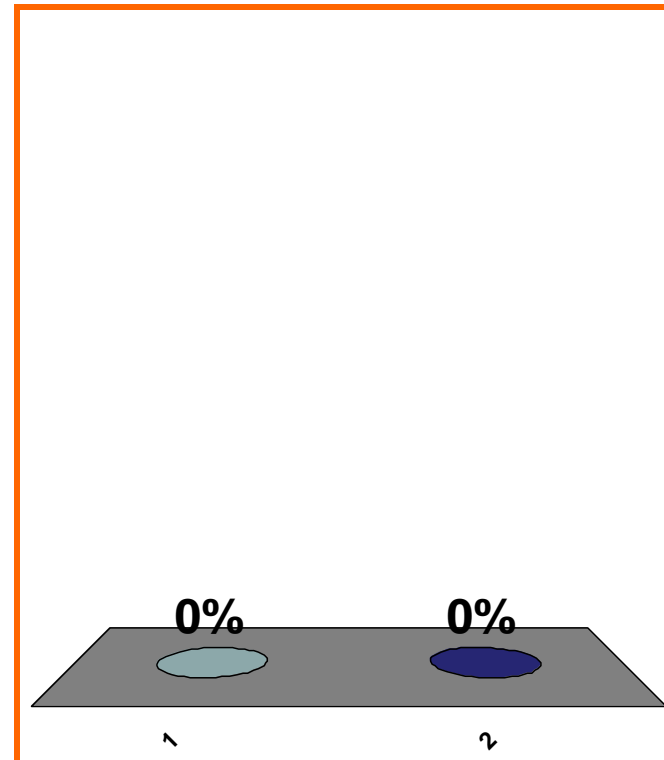


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T or F: $x^0 = 1$

(a) True

(b) False



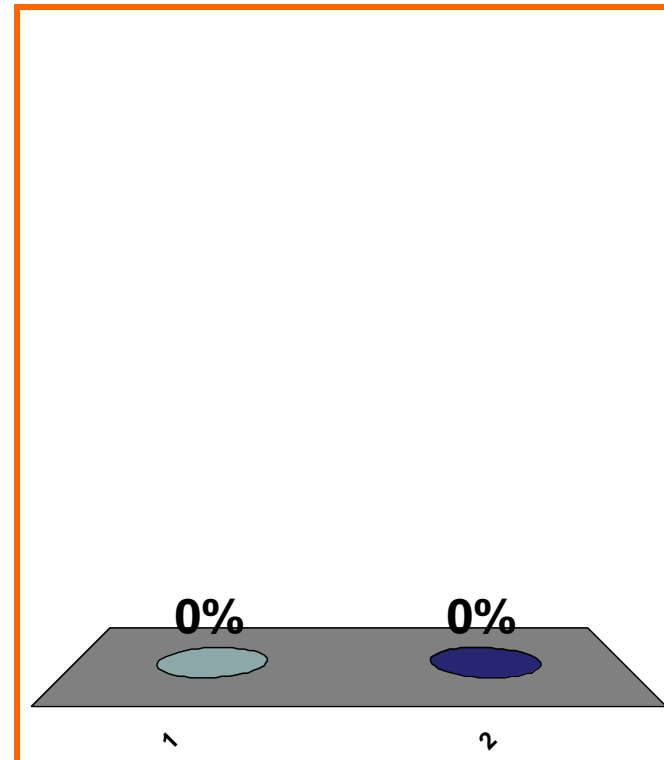
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T or F:

$$\exists x \in \mathbb{Q} \text{ s.t. } x^2 = 2$$

(a) True

(b) False



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Domain of \sqrt{x} is ??

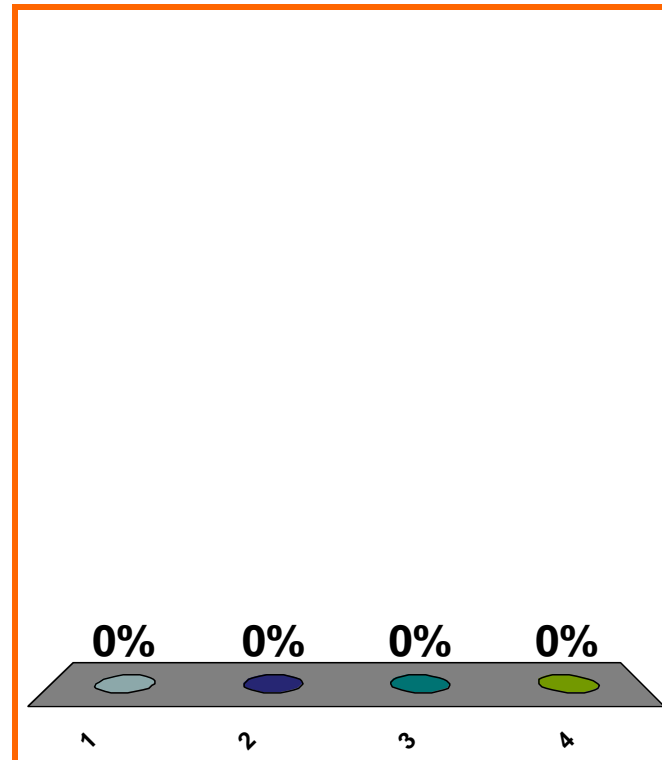
(a) $x \in \mathbb{R}$

(b) $x \in \mathbb{Q}$

(c) $x \in (0, \infty)$

(d) none of the above

Correct answer: $x \in [0, \infty)$



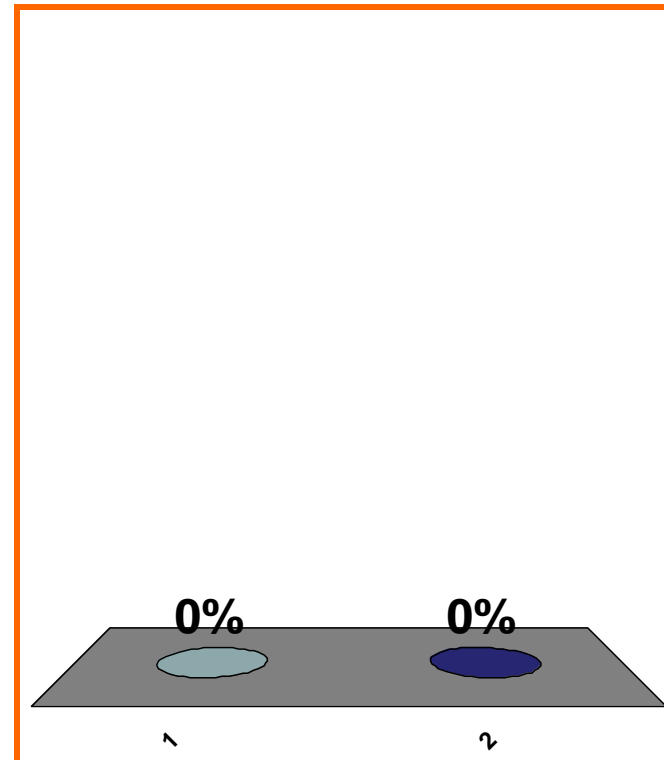
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T or F:

$(-\infty, 5]$ is compact

(a) True

(b) False



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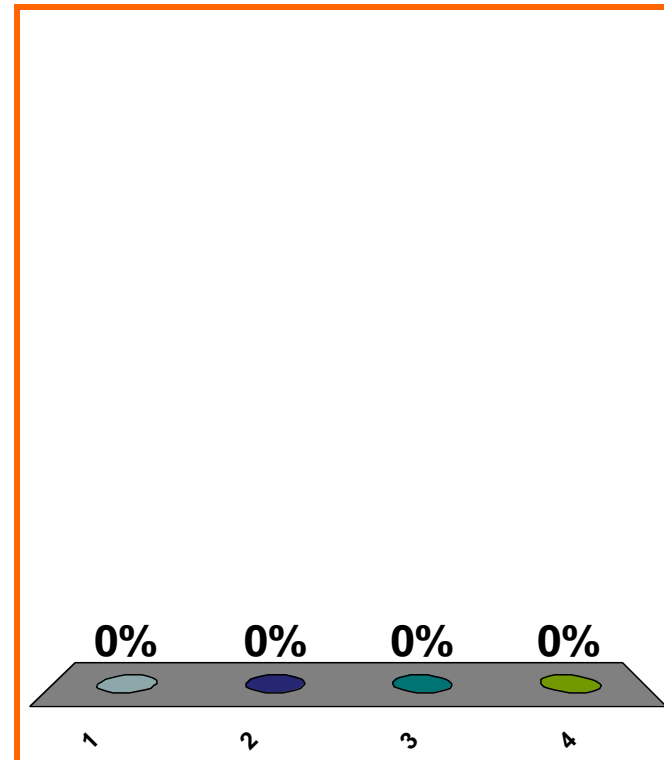
Which is a linear combination of $\sin x$ and $\cos x$?

(a) $\sin x$

(b) $2 + 8x + 7x^2$

(c) e^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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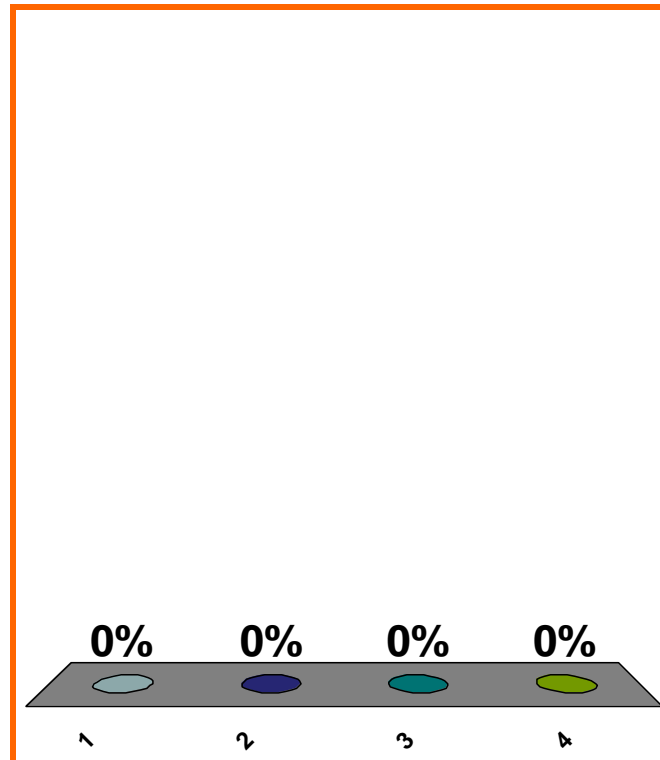
$$x^2 + 3x + 1 \text{ is } ??$$

(a) polynomial

(b) rational, **not** polynomial

(c) algebraic, **not** rational

(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

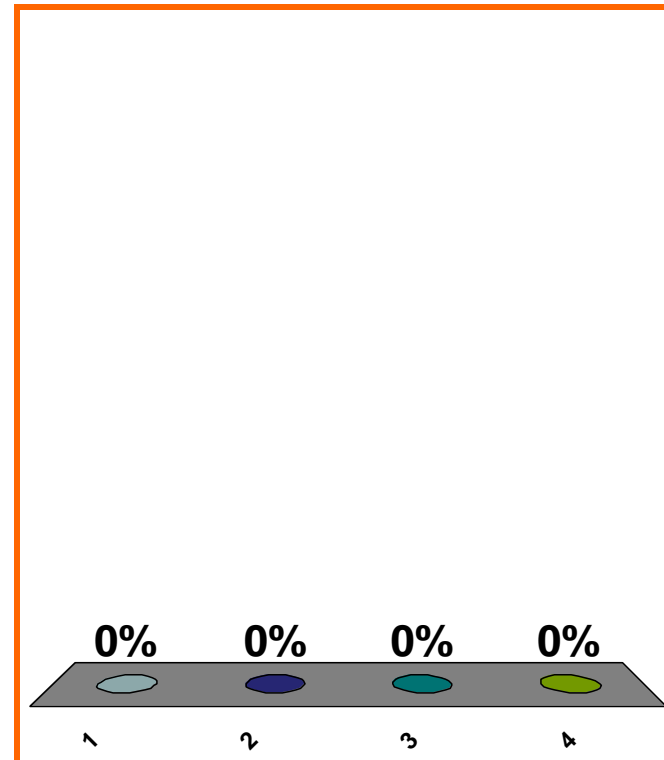
$$x^2 + 3\sqrt{x} + 1 \text{ is ??}$$

(a) polynomial

(b) rational, **not** polynomial

(c) algebraic, **not** rational

(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

$\sin x$ is ??

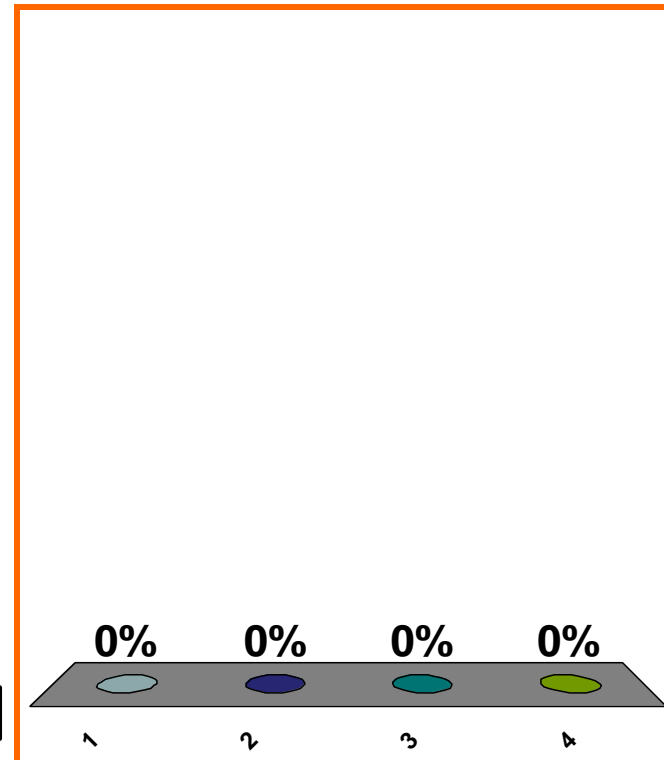
(a) polynomial

(b) rational, **not** polynomial

(c) algebraic, **not** rational

(d) **none** of the above

Correct answer: transcendental



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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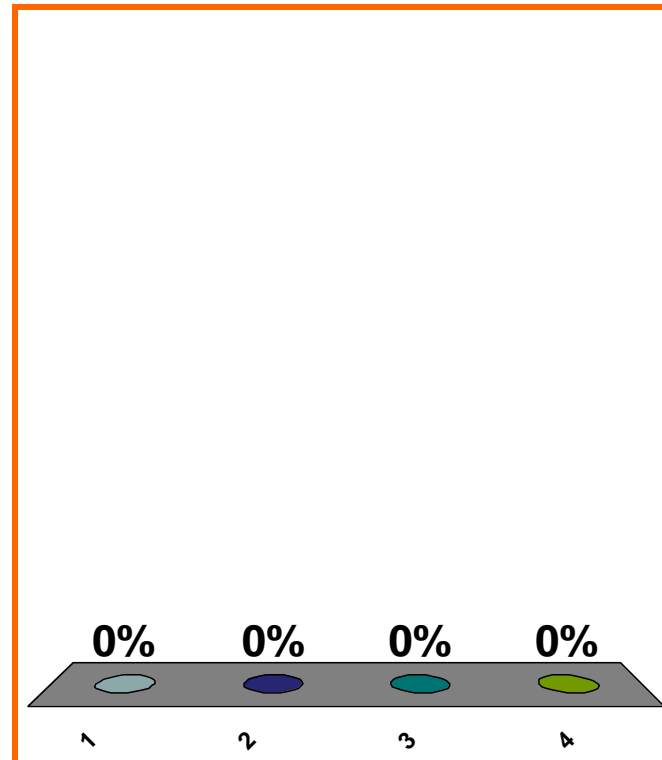
x^{10} is ??

(a) polynomial

(b) rational, not polynomial

(c) algebraic, not rational

(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

10^x is ??

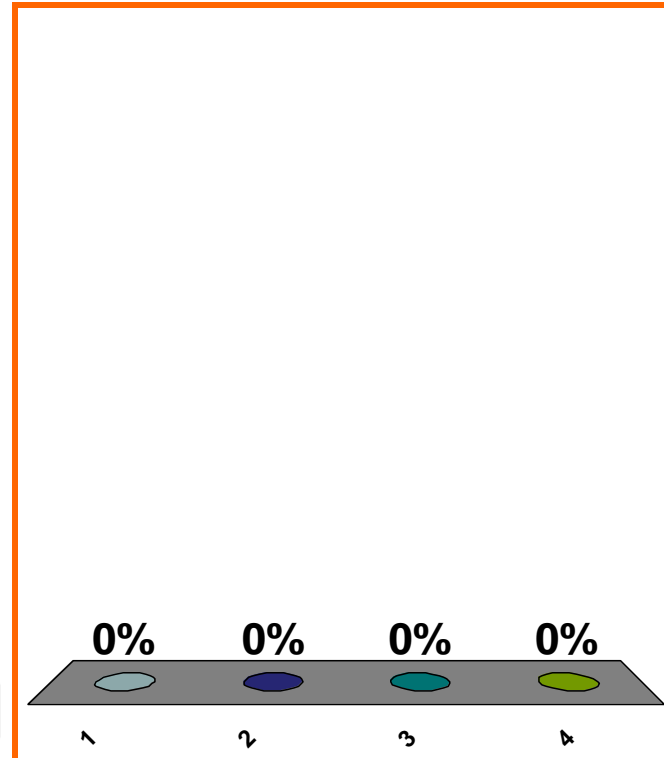
(a) polynomial

(b) rational, **not** polynomial

(c) algebraic, **not** rational

(d) **none** of the above

Correct answer: transcendental



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

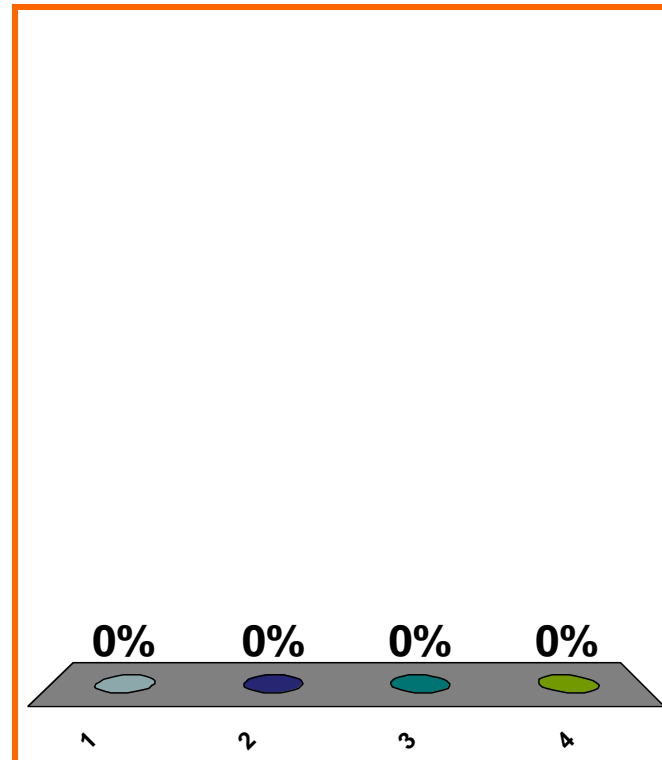
$$\frac{1}{x} \text{ is } ??$$

(a) polynomial

(b) rational, **not** polynomial

(c) algebraic, **not** rational

(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

distance from a to b ?

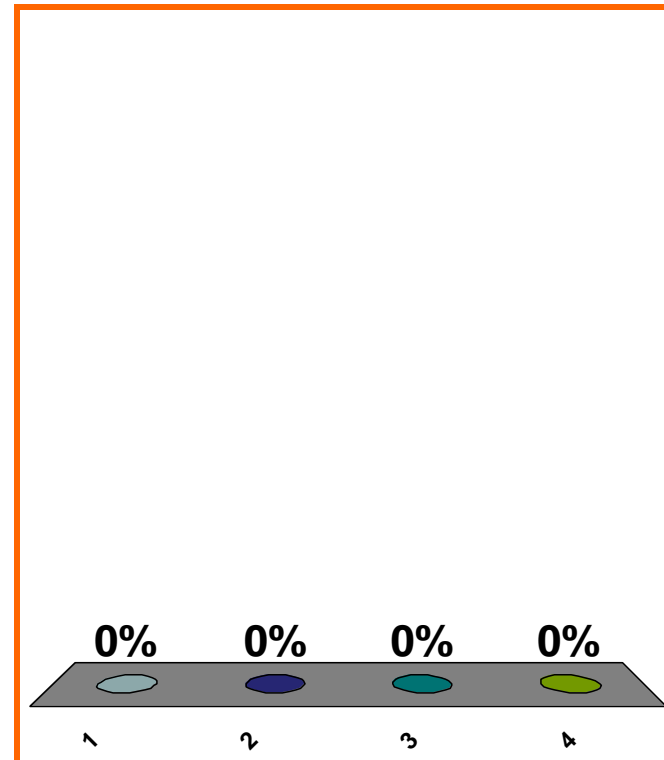
(a) $a - b$

(b) $b - a$

(c) $a + b$

(d) none of the above

Correct answer: $|a - b|$



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

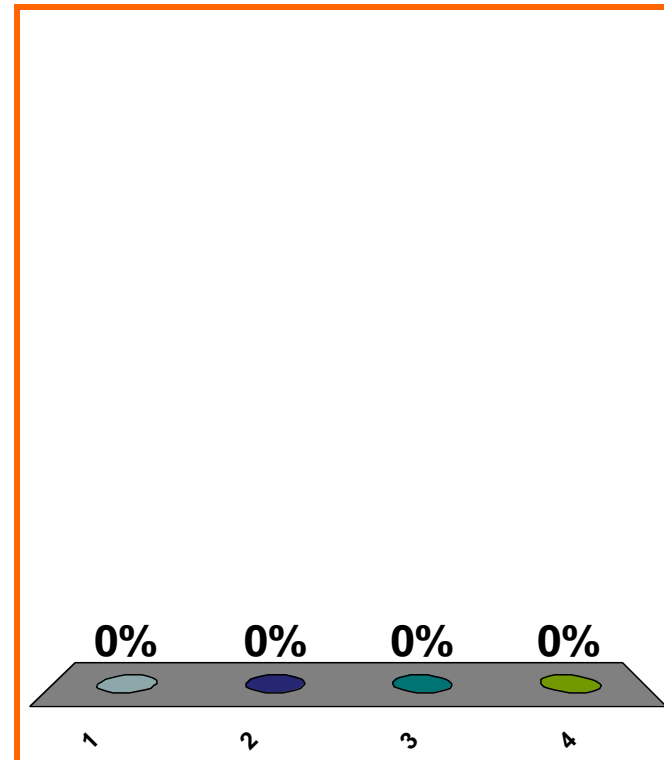
To get graph of $y + 1 = x^3$,
move graph of $y = x^3$...

(a) right 1

(b) left 1

(c) down 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

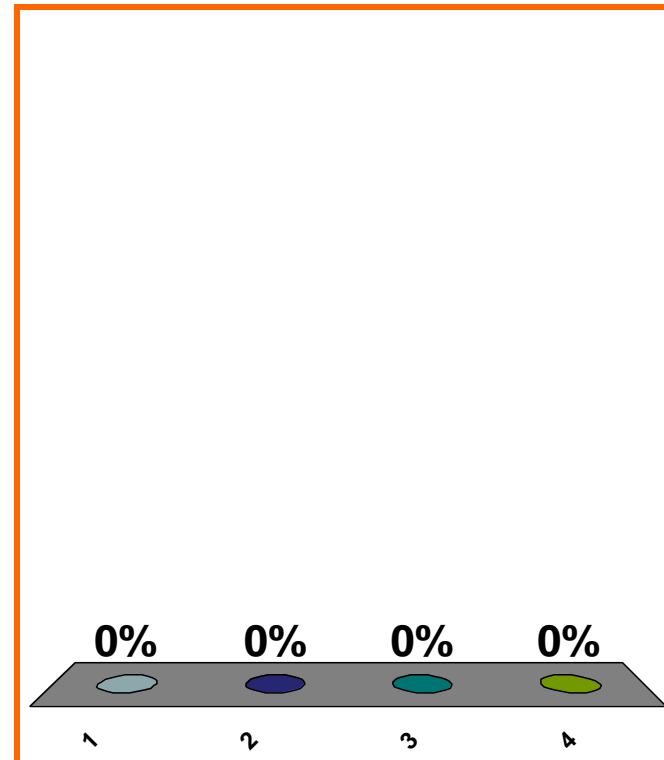
To get graph of $y^2 = \sin(x + \pi)$,
move graph of $y^2 = \sin(x)$. . .

(a) right π

(b) left π

(c) down π

(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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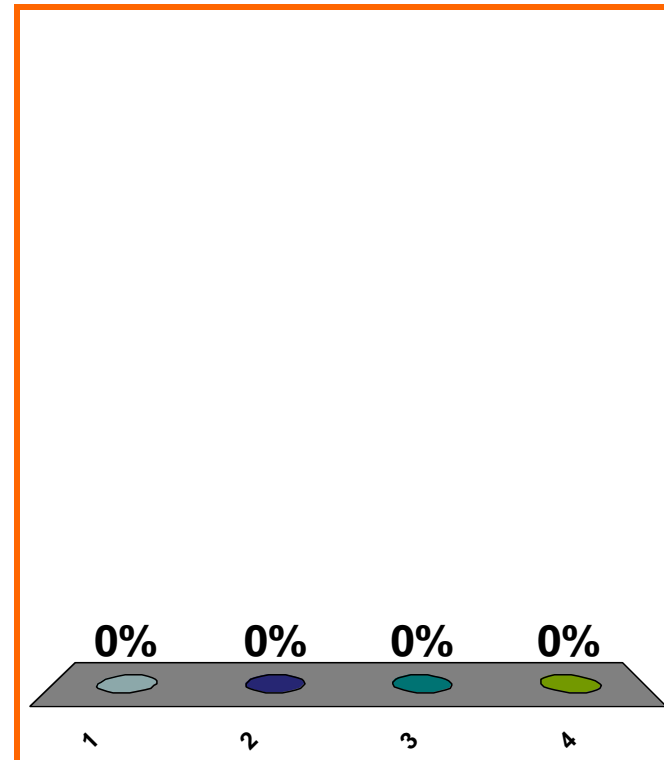
To get graph of $y^2 = \sin(x - \pi)$,
move graph of $y^2 = \sin(x)$...

(a) right π

(b) left π

(c) down π

(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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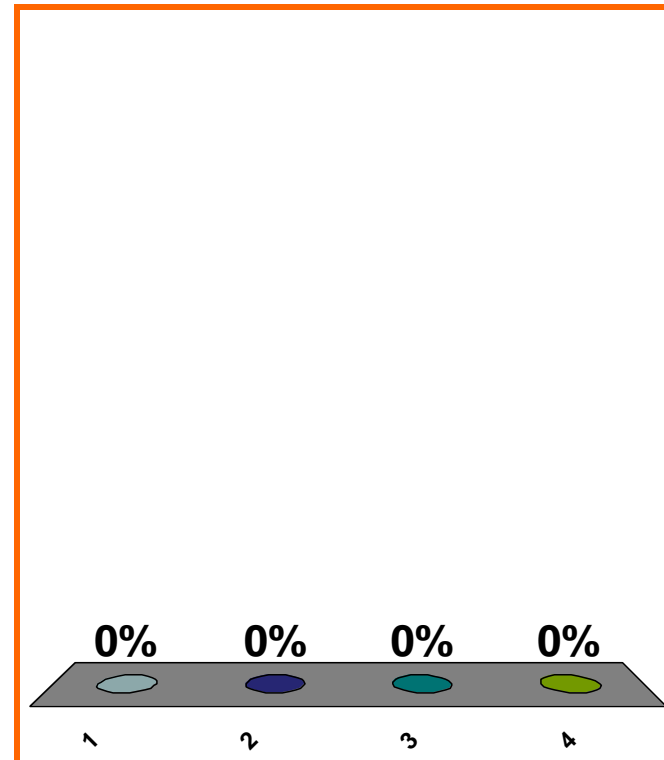
To get graph of $(y + \pi)^2 = \sin(x)$,
move graph of $y^2 = \sin(x)$. . .

(a) right π

(b) left π

(c) down π

(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

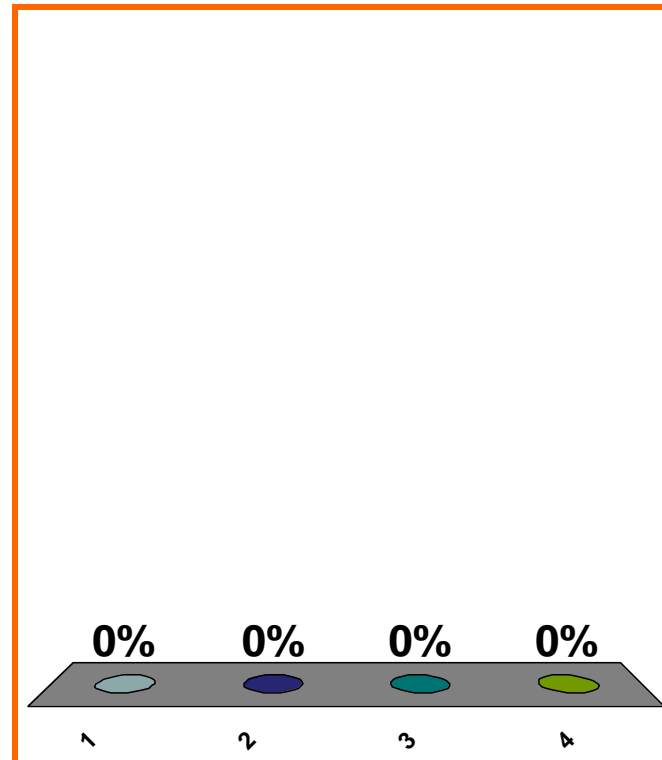
$$\sum_{j=2}^4 j^3 = ??$$

(a) $(2 + 3 + 4)^3$

(b) $(1 + 2 + 3 + 4)^3$

(c) $2^3 + 3^3 + 4^3$

(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
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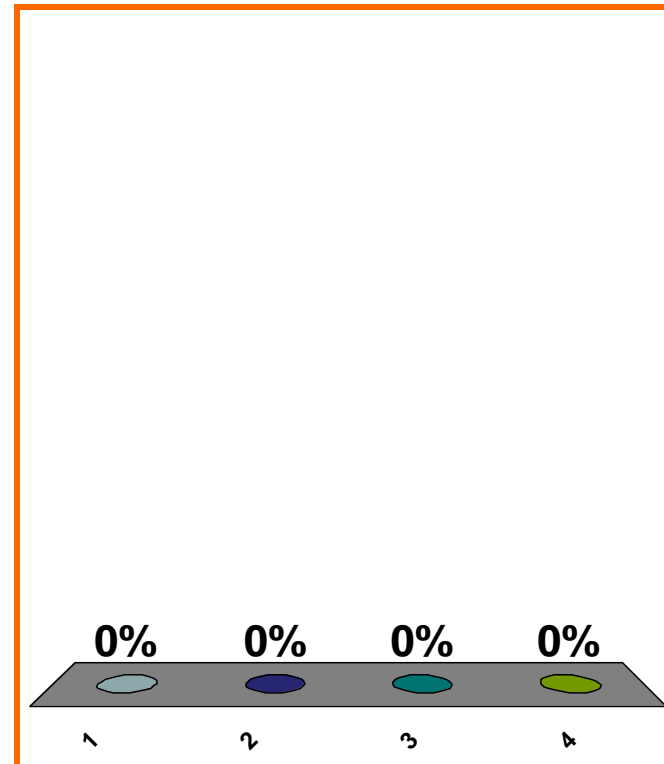
$$\sin(\pi/3) = ??$$

(a) $\sqrt{2}/2$

(b) $\sqrt{3}/2$

(c) $1/2$

(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
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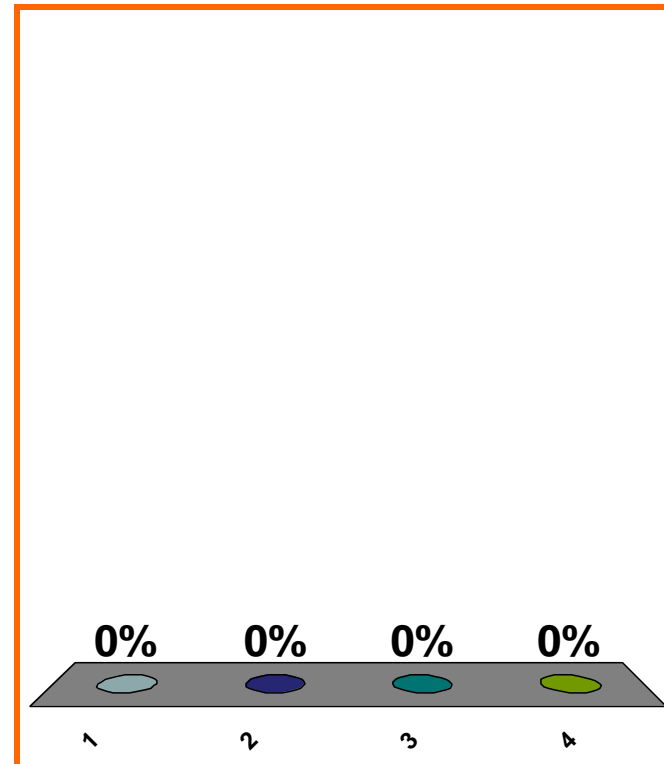
$$\arcsin(\sqrt{3}/2) = ??$$

(a) $\pi/3$

(b) $\pi/4$

(c) $\pi/6$

(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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0 of 5

Topic 0110

0 pts

26

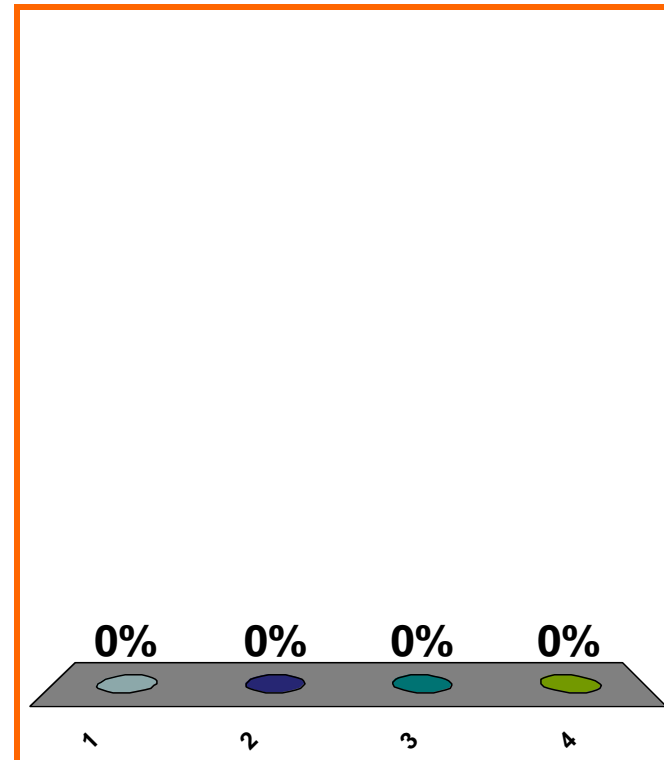
$$\sin(3\pi/4) = ??$$

(a) $\sqrt{2}/2$

(b) $-\sqrt{2}/2$

(c) $1/2$

(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
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0 of 5

Topic 0090

0 pts

27

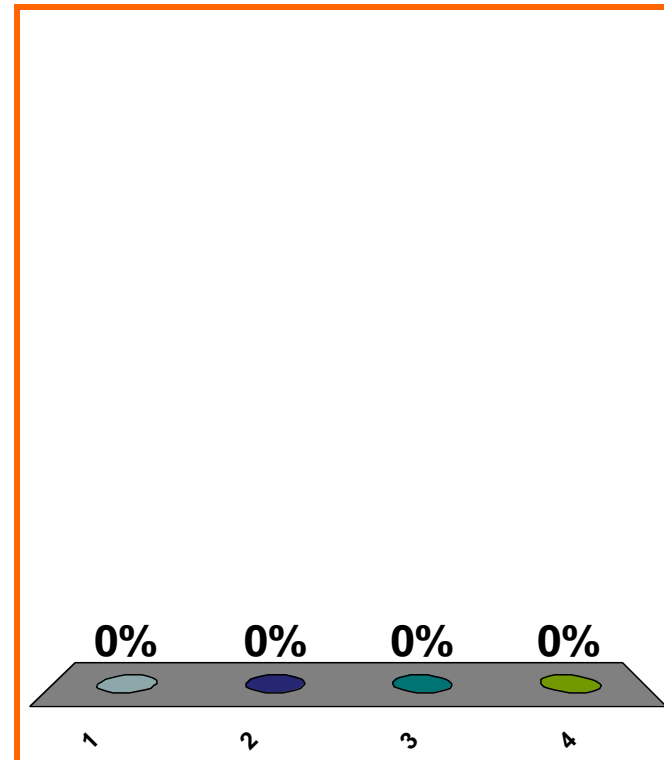
$$\arcsin(\sqrt{2}/2) = ??$$

(a) $\pi/3$

(b) $\pi/4$

(c) $\pi/6$

(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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0 of 5

Topic 0110

0 pts

28

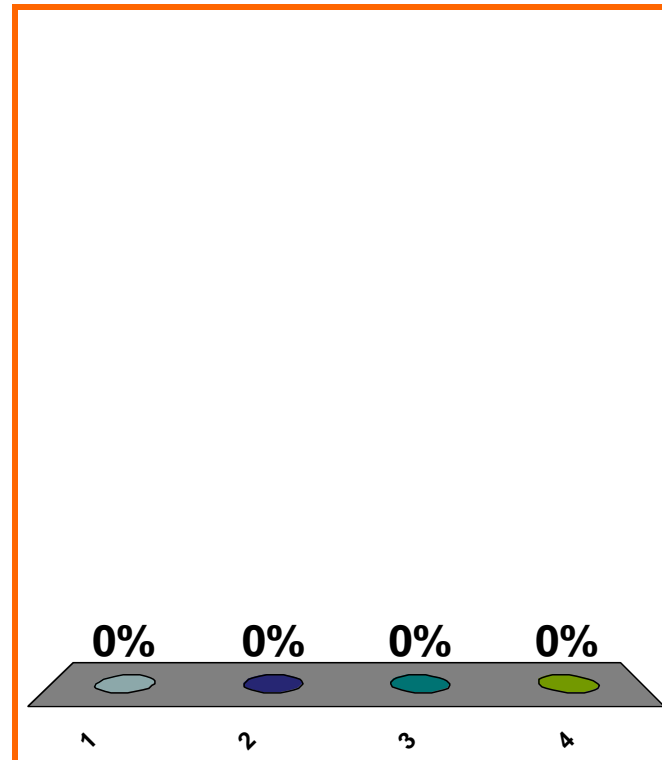
position = t^2
velocity = ??

(a) $2t$

(b) $t/2$

(c) t^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
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from position 5 to position 9
from time 3 to time 11

average velocity = ??

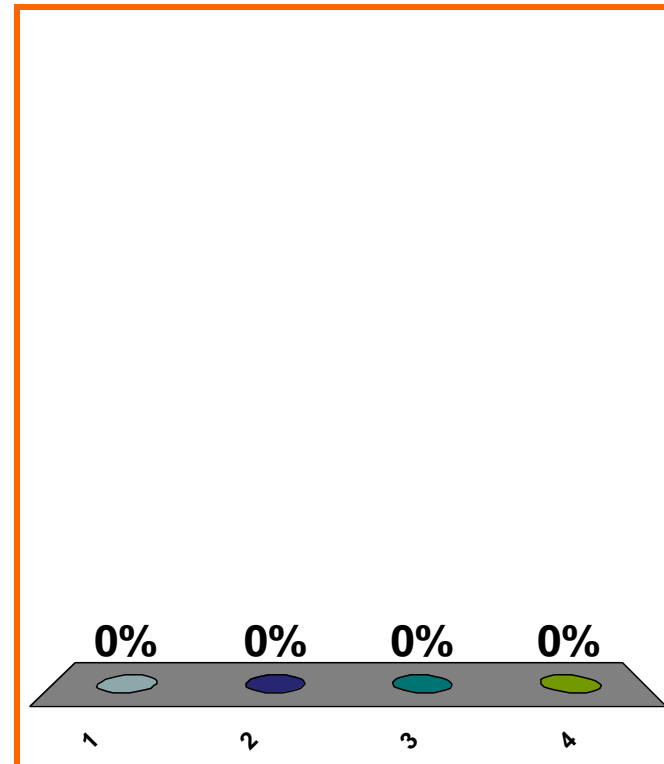
(a) 2

(b) 4

(c) 8

(d) none of the above

Correct answer: 1/2



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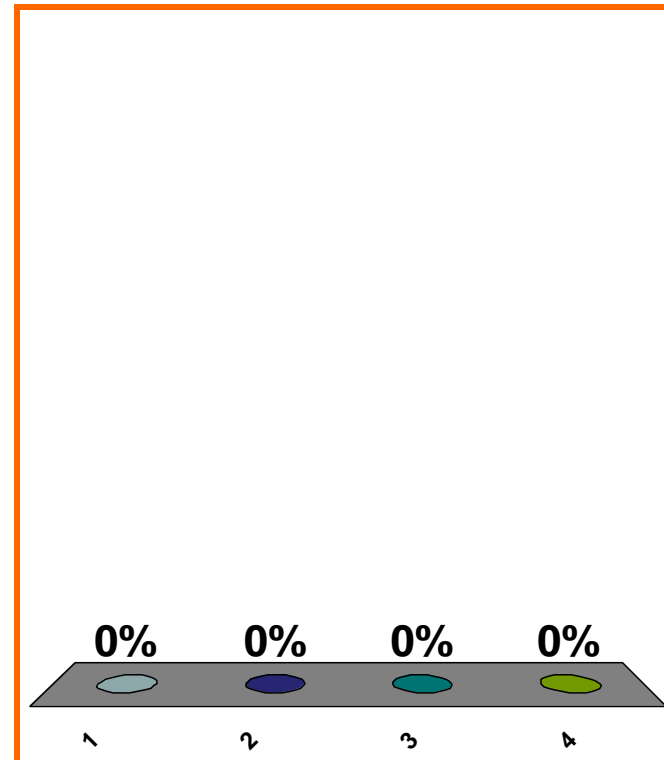
$$\lim_{x \rightarrow 0} \frac{2x^3 + 7x}{x} = ??$$

(a) 7

(b) 2

(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

tangent slopes for $y = x^3$, esp. at $x = 5$.

$$\lim_{h \rightarrow 0} \frac{(5 + h)^3 - 5^3}{h}$$

$$\lim_{\Delta x \rightarrow 0} \frac{(5 + \Delta x)^3 - 5^3}{\Delta x}$$

$$\lim_{h \rightarrow 0} \frac{|h|}{h}$$

the limit game

LOOK AHEAD

differentiate polynomials

differentiate all 6 trig functions

product rule, quotient rule

SAVE THE
SESSION
DATA

RETURN TO
PRESENTATION