Calculus
F 20 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

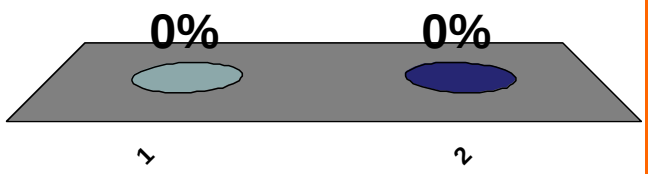
Topics covered are in bounds

QUIZ
FOLLOWS

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

(a) True

(b) False



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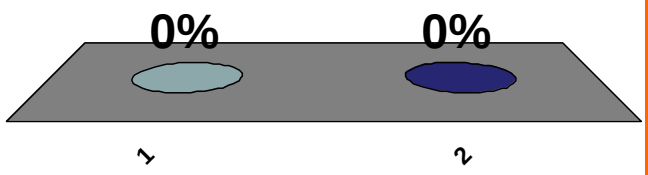
T or F: $x^0 = 1$

(a) True

(b) False



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0 of 5

Topic 0020

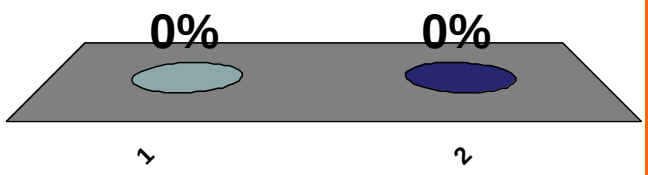
0 pts

T or F:

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

(a) True

(b) False



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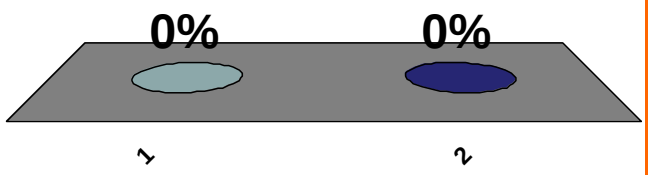
T or F:

$$\exists x \in \mathbb{R} \text{ s.t. } x^2 = -1$$

(a) True

(b) False



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Topic 0010

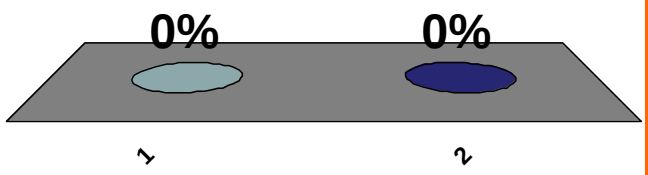
0 pts

T or F:

$$\forall x \in \mathbb{R},\ \sqrt{x^2} = x$$

(a) True

(b) False



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Topic 0050

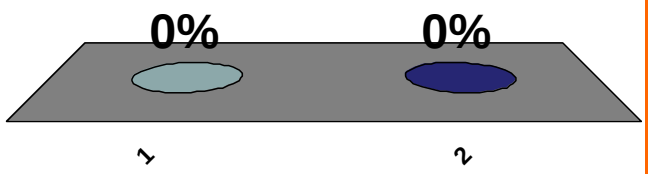
0 pts

T or F:

$[-1, \infty)$ is closed

(a) True

(b) False



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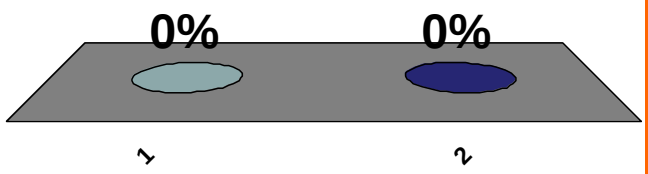
T or F:

$[-1, 2]$ is compact

(a) True

(b) False



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Domain of $\sqrt{x}$ is ??

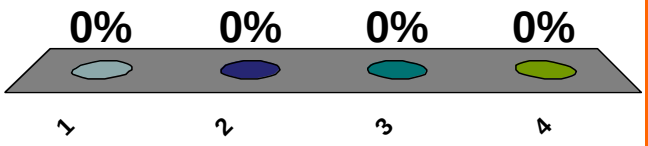
(a) $x \in \mathbb{R}$

(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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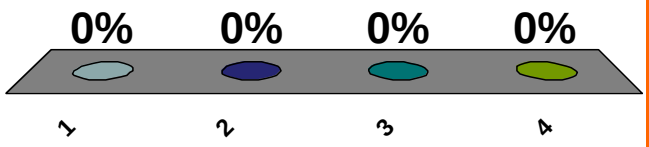
Which is a linear combination of $1, x, x^2$?

(a) $\sin x$

(b) $2 - x$

(c) e^x

(d) none of the above



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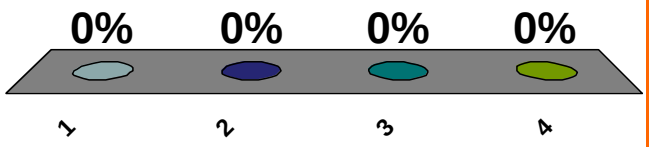
Quartic coefficient in $3x^5 + x^4 - x^3 + 8x + \pi$

(a) 1

(b) 3

(c) -1

(d) none of the above



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Leading coefficient in

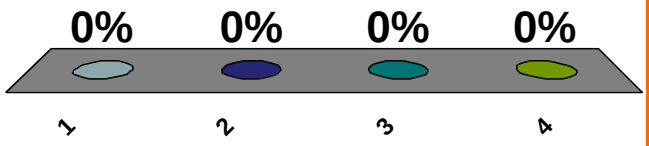
$$3x^5 + x^4 - x^3 + 8x + \pi$$

(a) 1

(b) 3

(c) -1

(d) none of the above



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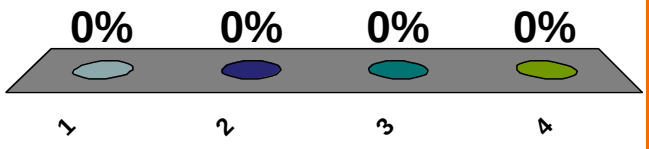
$x^2 + 3x + 1$ is ??

(a) polynomial

(b) rational, not polynomial

(c) algebraic, not rational

(d) none of the above



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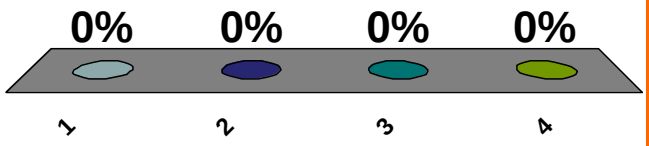
$x^2 + 3\sqrt{x} + 1$ is ??

(a) polynomial

(b) rational, not polynomial

(c) algebraic, not rational

(d) none of the above



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$\sin x$ is ??

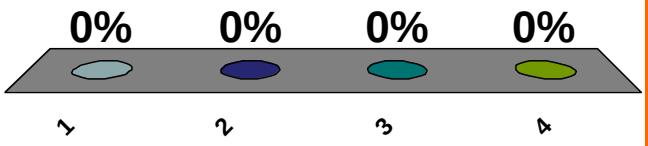
(a) polynomial

(b) rational, not polynomial

(c) algebraic, not rational

(d) none of the above

Correct answer: transcendental



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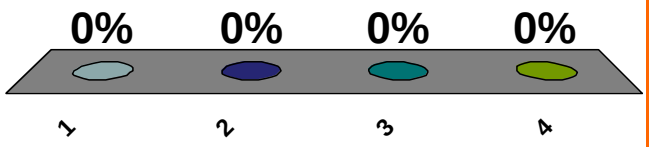
x^{10} is ??

(a) polynomial

(b) rational, not polynomial

(c) algebraic, not rational

(d) none of the above



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Topic 0030

0 pts

10^x is ??

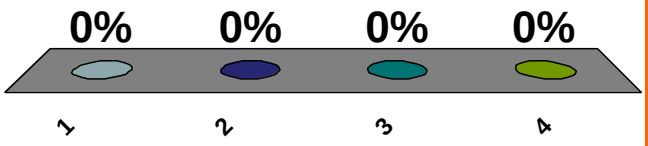
(a) polynomial

(b) rational, not polynomial

(c) algebraic, not rational

(d) none of the above

Correct answer: transcendental



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Topic 0030

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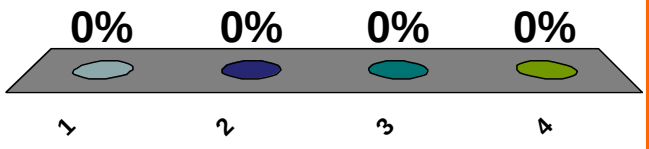
$\frac{1}{x}$ is ??

(a) polynomial

(b) rational, not polynomial

(c) algebraic, not rational

(d) none of the above



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```
          1
        1   1
      1   2   1
    1   3   3   1
  1   4   6   4   1
```

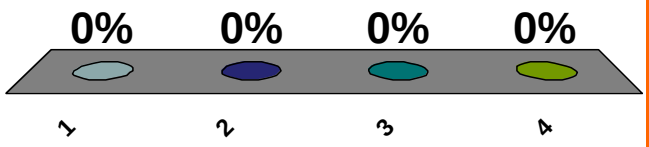
$(2x - y)^3 = ??$

(a) $8x^3 - y^3$

(b) $8x^3 + y^3$

(c) $8x^3 - 3(4x^2)y + 3(2x)y^2 - y^3$

(d) none of the above



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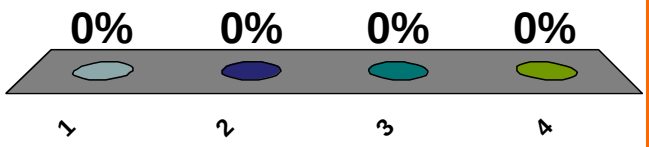
distance from 7 to 9?

(a) 2

(b) −2

(c) 4

(d) none of the above



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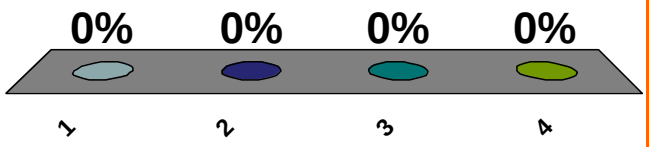
distance from 9 to 7?

(a) 2

(b) −2

(c) 4

(d) none of the above



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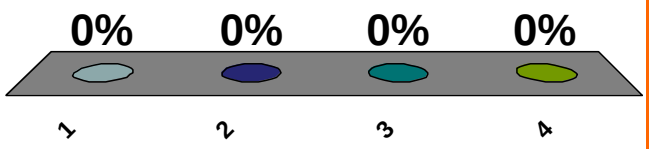
distance from x to 5?

(a) $5 - x$

(b) $|5 - x|$

(c) $x - 5$

(d) none of the above



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distance from a to b?

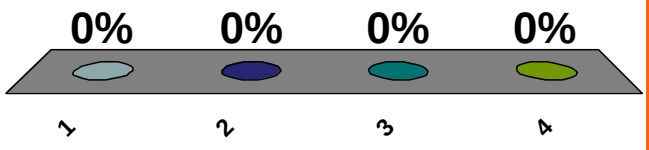
(a) $a - b$

(b) $b - a$

(c) $a + b$

(d) none of the above

Correct answer: $|a - b|$



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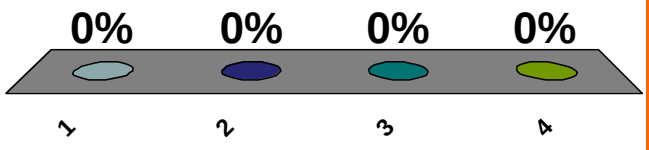
To get graph of $y + 1 = x^3$,
move graph of $y = x^3$ . . .

(a) right 1

(b) left 1

(c) down 1

(d) none of the above



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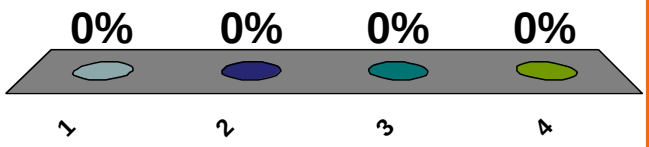
To get graph of $y^2 = \sin(x + \pi)$,
move graph of $y^2 = \sin(x)$ . . .

(a) right π

(b) left π

(c) down π

(d) none of the above



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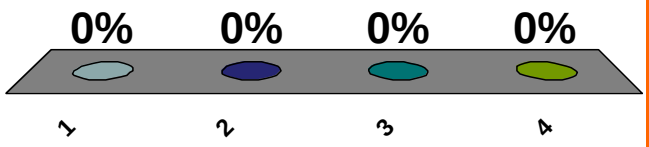
To get graph of $y^2 = \sin(x - \pi)$,
move graph of $y^2 = \sin(x)$ . . .

(a) right π

(b) left π

(c) down π

(d) none of the above



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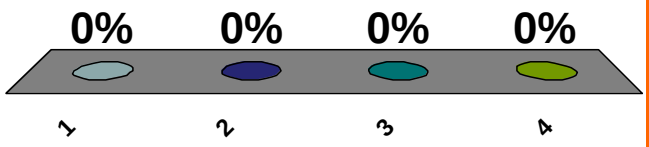
To get graph of $(y+\pi)^2 = \sin(x)$,
move graph of $y^2 = \sin(x)$ . . .

(a) right π

(b) left π

(c) down π

(d) none of the above



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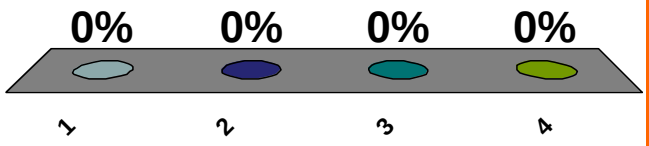
$$\sum_{j=2}^{4} j^3 = ??$$

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

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

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

(d) none of the above



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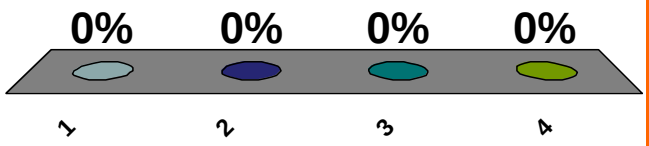
$\sin(\pi/3) = ??$

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

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

(c) $1/2$

(d) none of the above



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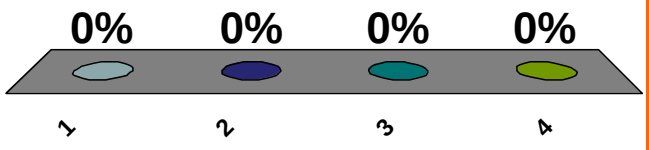
$\arcsin(\sqrt{3}/2) = ??$

(a) $\pi/3$

(b) $\pi/4$

(c) $\pi/6$

(d) none of the above



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position $= t^2$

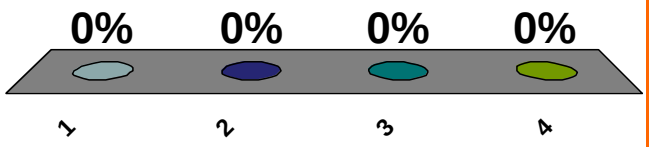
velocity $=$??

(a) $2t$

(b) $t/2$

(c) t^2

(d) none of the above



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from position 5 to position 9
from time 3 to time 11

average velocity = ??

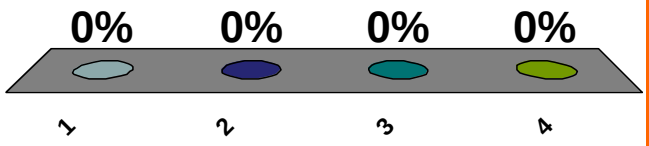
(a) 2

(b) 4

(c) 8

(d) none of the above

Correct answer: 1/2



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

position at time t (in rods): t^2

i.e., t^2 rods below the top of the building

---

approx speed at time 2 (in rods/sec):

$$\frac{2.001^2 - 2^2}{2.001 - 2} \qquad \frac{(2+h)^2 - 2^2}{(2+h) - 2} \underset{h \neq 0}{=} 4 + h$$

---

exact speed at time 2 (in rods/sec):

$$\lim_{h \underset{\neq}{\to} 0} \left[\frac{(2+h)^2 - 2^2}{(2+h) - 2} \right] = 4$$

---

approx speed at time t (in rods/sec):

$$\frac{(t+h)^2 - t^2}{(t+h) - t} \underset{h \neq 0}{=} 2t + h$$

---

exact speed at time t (in rods/sec):

SINGLE SYMBOL

$$\frac{d}{dt}\left[t^2\right] = \lim_{h \underset{\neq}{\to} 0} \left[\frac{(t+h)^2 - t^2}{(t+h) - t} \right] = 2t$$

tangent slopes for $y = x^2$

additivity of error

LOOK AHEAD

t^2 rods in t seconds; velocity?

differentiate polynomials

differentiate trig functions

differentiate polynomials

differentiate all 6 trig functions

product rule

SAVE THE SESSION DATA

RETURN TO PRESENTATION