A function y = f(x) has tangent lines whose slopes satisfy $m = 1 + x + x^2$ for all x such that 0 < x < 5. At x = 2, the function has a tangent line whose equation is y - 7x = 2. Compute f(4).

2025 MA Θ National Convention Calculus Hustle: Problem #1

A function y = f(x) has tangent lines whose slopes satisfy $m = 1 + x + x^2$ for all x such that 0 < x < 5. At x = 2, the function has a tangent line whose equation is y - 7x = 2. Compute f(4).

Answer:	

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #1

A function y = f(x) has tangent lines whose slopes satisfy $m = 1 + x + x^2$ for all x such that 0 < x < 5. At x = 2, the function has a tangent line whose equation is y - 7x = 2. Compute f(4). Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #1

A function y = f(x) has tangent lines whose slopes satisfy $m = 1 + x + x^2$ for all x such that 0 < x < 5. At x = 2, the function has a tangent line whose equation is y - 7x = 2. Compute f(4).

Answer:													
Round:	1	2	3	4	5	Round:	1	2	3	4	5		

A rotated parabola is described by the set of points (x, y) that satisfies the equation

 $x^2 - 2xy + y^2 + x = 0$

This rotated parabola has a horizontal tangent line at the point (a, b). Find a - b.

2025 MA Θ National Convention Calculus Hustle: Problem #2

A rotated parabola is described by the set of points (x, y) that satisfies the equation

$$x^2 - 2xy + y^2 + x = 0$$

This rotated parabola has a horizontal tangent line at the point (a, b). Find a - b.

Answer:

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #2

A rotated parabola is described by the set of points (x, y) that satisfies the equation

 $x^2 - 2xy + y^2 + x = 0$

This rotated parabola has a horizontal tangent line at the point (a, b). Find a - b.

Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #2

A rotated parabola is described by the set of points (x, y) that satisfies the equation

 $x^2 - 2xy + y^2 + x = 0$

This rotated parabola has a horizontal tangent line at the point (a, b). Find a - b.

Answer:						Answer:							
Round:	1	2	3	4	5	Round:	1	2	3	4	5		

Suppose f is a 2π -periodic and integrable function (i.e. $f(x + 2\pi) = f(x)$ for all x.) Suppose $\int_{-\pi}^{\pi} f(x) dx = 10$. Evaluate $\int_{\pi}^{3\pi} (f(x) + \pi) dx$

2025 MA Θ National Convention Calculus Hustle: Problem #3

Suppose f is a 2π -periodic and integrable function (i.e. $f(x + 2\pi) = f(x)$ for all x.) Suppose $\int_{-\pi}^{\pi} f(x) dx = 10$. Evaluate $\int_{\pi}^{3\pi} (f(x) + \pi) dx$

Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #3

Suppose f is a 2π -periodic and integrable function (i.e. $f(x + 2\pi) = f(x)$ for all x.) Suppose $\int_{-\pi}^{\pi} f(x) dx = 10$. Evaluate $\int_{\pi}^{3\pi} (f(x) + \pi) dx$ Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #3

Suppose f is a 2π -periodic and integrable function (i.e. $f(x + 2\pi) = f(x)$ for all x.) Suppose $\int_{-\pi}^{\pi} f(x) dx = 10$. Evaluate $\int_{\pi}^{3\pi} (f(x) + \pi) dx$

Answer:												
Round:	1	2	3	4	5	Round:	1	2	3	4	5	

.

Let
$$f(x) = \frac{1}{x}$$
. Calculate
$$\lim_{h \to 0} \frac{f(x+2h) + f(x) - 2f(x+h)}{h^2}$$

2025 MA Θ National Convention Calculus Hustle: Problem #4

Let
$$f(x) = \frac{1}{x}$$
. Calculate
$$\lim_{h \to 0} \frac{f(x+2h) + f(x) - 2f(x+h)}{h^2}$$

Answer: _____

Round: 1 2 3 4 5

2025 $MA\Theta$ National Convention Calculus Hustle: Problem #4

Let
$$f(x) = \frac{1}{x}$$
. Calculate
$$\lim_{h \to 0} \frac{f(x+2h) + f(x) - 2f(x+h)}{h^2}$$

Answer:

Round: 1 2 3 4 5

$2025 \text{ MA}\Theta$ National Convention Calculus Hustle: Problem #4

Let
$$f(x) = \frac{1}{x}$$
. Calculate
$$\lim_{h \to 0} \frac{f(x+2h) + f(x) - 2f(x+h)}{h^2}$$

Answer:			-	Answer:												
Round:	1	2	3	4	5						Round:	1	2	3	4	5

Compute

$$\int_{0}^{\pi/4} \frac{1}{(\sin x + \cos x)^2} \mathrm{d}x$$

2025 MA Θ National Convention Calculus Hustle: Problem #5

Compute

$$\int_{0}^{\pi/4} \frac{1}{(\sin x + \cos x)^2} \mathrm{d}x$$

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #5

Compute

$$\int_{0}^{\pi/4} \frac{1}{(\sin x + \cos x)^2} \mathrm{d}x$$

Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #5

$$\int_{0}^{\pi/4} \frac{1}{(\sin x + \cos x)^2} \mathrm{d}x$$

Answer:					-						
Round:	1	2	3	4	5	Round: 1	2	3	4	5	

The perimeter of the region \mathcal{R} in the first quadrant bounded by the curves $y = \ln x$, x = 1 and x = 2 is of the form

$$\int_{1}^{2} \frac{\sqrt{1+x^2}}{x} \mathrm{d}x + A$$

Where A is a real number. Find A.

2025 MA Θ National Convention Calculus Hustle: Problem #6

The perimeter of the region \mathcal{R} in the first quadrant bounded by the curves $y = \ln x$, x = 1 and x = 2 is of the form

$$\int_{1}^{2} \frac{\sqrt{1+x^2}}{x} \mathrm{d}x + A$$

Where A is a real number. Find A.

Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #6

The perimeter of the region \mathcal{R} in the first quadrant bounded by the curves $y = \ln x$, x = 1 and x = 2 is of the form

$$\int_{1}^{2} \frac{\sqrt{1+x^2}}{x} \mathrm{d}x + A$$

Where A is a real number. Find A.

Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #6

The perimeter of the region \mathcal{R} in the first quadrant bounded by the curves $y = \ln x$, x = 1 and x = 2 is of the form

$$\int_{1}^{2} \frac{\sqrt{1+x^2}}{x} \mathrm{d}x + A$$

Where A is a real number. Find A.

Answer:					-	Answer:									_
Round:	1	2	3	4	5					Round:	1	2	3	4	5

Compute

$$\lim_{x \to 1} \frac{\cos x - \cos 1}{1 - x}$$

2025 MA Θ National Convention Calculus Hustle: Problem #7

Compute

$$\lim_{x \to 1} \frac{\cos x - \cos 1}{1 - x}$$

Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #7

Compute

$$\lim_{x \to 1} \frac{\cos x - \cos 1}{1 - x}$$

Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #7

$$\lim_{x \to 1} \frac{\cos x - \cos 1}{1 - x}$$

Answer:				-	Answer:												
Round:	1	2	3	4	5					Ro	ound:	1	2	3	4	5	

A shape has a base bound by the curve y = 2xbetween x = -3 and x = 2. Cross sections of the shape are squares perpendicular to the *x*-axis. Find the volume of the solid.

2025 MA Θ National Convention Calculus Hustle: Problem #8

A shape has a base bound by the curve y = 2xbetween x = -3 and x = 2. Cross sections of the shape are squares perpendicular to the *x*-axis. Find the volume of the solid.

Answer:	

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #8

A shape has a base bound by the curve y = 2xbetween x = -3 and x = 2. Cross sections of the shape are squares perpendicular to the *x*-axis. Find the volume of the solid. Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #8

A shape has a base bound by the curve y = 2xbetween x = -3 and x = 2. Cross sections of the shape are squares perpendicular to the *x*-axis. Find the volume of the solid.

Answer:				_	Answer:												
Round:	1	2	3	4	5				Ro	ound:	1	2	3	4	5		

Compute the sum of the following convergent series

$$\sum_{n=2}^{\infty} 3^{-2n}$$

2025 MA Θ National Convention Calculus Hustle: Problem #9

Compute the sum of the following convergent series

$$\sum_{n=2}^{\infty} 3^{-2n}$$

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #9

Compute the sum of the following convergent series

$$\sum_{n=2}^{\infty} 3^{-2n}$$

Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #9

Compute the sum of the following convergent series

$$\sum_{n=2}^{\infty} 3^{-2n}$$

Answer:						Answer:					-
Round:	1	2	3	4	5	Round:	1	2	3	4	5

Compute

$$\int_{-2}^{2} |x + |x| |\mathrm{d}x$$

2025 MA Θ National Convention Calculus Hustle: Problem #10

Compute

$$\int_{-2}^{2} |x + |x| |\mathrm{d}x$$

Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #10

Compute

$$\int_{-2}^{2} |x + |x| |\mathrm{d}x|$$

Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #10

 $\int_{-\infty}^{2} |x + |x| |\mathrm{d}x$

Answer:					-				-		
Round:	1	2	3	4	5	Round:	1	2	3	4	5

Evaluate:

$$\lim_{x \to 4} \left(\frac{x}{x-4} \int_4^x \frac{\sin t}{t} \right) \mathrm{d}x$$

2025 MA Θ National Convention Calculus Hustle: Problem #11

Evaluate:

$$\lim_{x \to 4} \left(\frac{x}{x-4} \int_4^x \frac{\sin t}{t} \right) \mathrm{d}x$$

Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #11

Evaluate:

$$\lim_{x \to 4} \left(\frac{x}{x-4} \int_4^x \frac{\sin t}{t} \right) \mathrm{d}x$$

Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #11

Evaluate:

$$\lim_{x \to 4} \left(\frac{x}{x-4} \int_4^x \frac{\sin t}{t} \right) \mathrm{d}x$$

Answer:					-	Answer:					-
Round:	1	2	3	4	5	Round:	1	2	3	4	5

Compute the area inside both polar curves r = 2 and $r = 4 \cos \theta$

2025 MA Θ National Convention Calculus Hustle: Problem #12

Compute the area inside both polar curves r = 2 and $r = 4 \cos \theta$

Answer:	

Round: 1 2 3 4 5

Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #12

Compute the area inside both polar curves r = 2 and $r = 4 \cos \theta$

2025 MA Θ National Convention Calculus Hustle: Problem #12

Compute the area inside both polar curves r = 2 and $r = 4 \cos \theta$

Answer:					_ Answer:						_
Round:	1	2	3	4	5	Round:	1	2	3	4	5

The area bounded by the coordinate axes and the tangent line to $x^2 + 2x + y - 3 = 0$ at the point where it meets the y-axis is

2025 MA Θ National Convention Calculus Hustle: Problem #13

The area bounded by the coordinate axes and the tangent line to $x^2 + 2x + y - 3 = 0$ at the point where it meets the y-axis is

Answer:	

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #13

The area bounded by the coordinate axes and the tangent line to $x^2 + 2x + y - 3 = 0$ at the point where it meets the y-axis is Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #13

The area bounded by the coordinate axes and the tangent line to $x^2 + 2x + y - 3 = 0$ at the point where it meets the y-axis is

Answer:				_	Answer:													
Round:	1	2	3	4	5						Round	:	1	2	3	4	5	

Compute

$$\int_{1}^{7/2} \min(x - \lfloor x \rfloor, -x - \lfloor -x \rfloor) \mathrm{d}x$$

2025 MA Θ National Convention Calculus Hustle: Problem #14

Compute

$$\int_{1}^{7/2} \min(x - \lfloor x \rfloor, -x - \lfloor -x \rfloor) \mathrm{d}x$$

Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #14

Compute

$$\int_{1}^{7/2} \min(x - \lfloor x \rfloor, -x - \lfloor -x \rfloor) \mathrm{d}x$$

Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #14

$$\int_{1}^{7/2} \min(x - \lfloor x \rfloor, -x - \lfloor -x \rfloor) \mathrm{d}x$$

Answer:												
Round:	1	2	3	4	5	Round:	1	2	3	4	5	

Compute

$$\int_{-2}^{2} \frac{|x|+x}{x^2+1} \mathrm{d}x$$

2025 MA Θ National Convention Calculus Hustle: Problem #15

Compute

$$\int_{-2}^{2} \frac{|x| + x}{x^2 + 1} \mathrm{d}x$$

Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #15

Compute

$$\int_{-2}^{2} \frac{|x|+x}{x^2+1} \mathrm{d}x$$

Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #15

$$\int_{-2}^{2} \frac{|x|+x}{x^2+1} \mathrm{d}x$$

Answer:						Answer:					-
Round:	1	2	3	4	5	Round:	1	2	3	4	5

A function satisfies

$$\frac{\mathrm{d}f}{\mathrm{d}x} = 1 - x$$

If the function passes through the point f(-1) = 3, find f(2).

2025 MA Θ National Convention Calculus Hustle: Problem #16

A function satisfies

$$\frac{\mathrm{d}f}{\mathrm{d}x} = 1 - x$$

If the function passes through the point f(-1) = 3, find f(2).

Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #16

A function satisfies

$$\frac{\mathrm{d}f}{\mathrm{d}x} = 1-x$$

If the function passes through the point f(-1) = 3, find f(2).

Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #16

A function satisfies

$$\frac{\mathrm{d}f}{\mathrm{d}x} = 1 - x$$

If the function passes through the point f(-1) = 3, find f(2).

Answer:					-	Answer:					-
Round:	1	2	3	4	5	Round:	1	2	3	4	5

A bug is moving along a parametric curve described by the equations

$$\begin{cases} x = \sin t + t \\ y = t - \cos t \end{cases}$$

on the interval [0,8]. Find the speed of the particle at the moment when $t = \frac{\pi}{2}$

2025 MA Θ National Convention Calculus Hustle: Problem #17

A bug is moving along a parametric curve described by the equations

$$\begin{cases} x = \sin t + t \\ y = t - \cos t \end{cases}$$

on the interval [0,8]. Find the speed of the particle at the moment when $t = \frac{\pi}{2}$

Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #17

A bug is moving along a parametric curve described by the equations

$$\begin{cases} x = \sin t + t \\ y = t - \cos t \end{cases}$$

on the interval [0,8]. Find the speed of the particle at the moment when $t = \frac{\pi}{2}$

Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #17

A bug is moving along a parametric curve described by the equations

$$\begin{cases} x = \sin t + t \\ y = t - \cos t \end{cases}$$

on the interval [0,8]. Find the speed of the particle at the moment when $t = \frac{\pi}{2}$

Answer:				_	Answer:									_					
Round:	1	2	3	4	5							F	lour	nd:	1	2	3	4	5

The region \mathcal{R} , bounded by the coordinate axes and the line x + y = 1 is the base of a solid with cross sections perpendicular to the x-axis whose area is given by $A(x) = xe^{-x}$. Compute the volume of the region.

2025 MA Θ National Convention Calculus Hustle: Problem #18

The region \mathcal{R} , bounded by the coordinate axes and the line x + y = 1 is the base of a solid with cross sections perpendicular to the x-axis whose area is given by $A(x) = xe^{-x}$. Compute the volume of the region.

Answer:	

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #18

The region \mathcal{R} , bounded by the coordinate axes and the line x + y = 1 is the base of a solid with cross sections perpendicular to the x-axis whose area is given by $A(x) = xe^{-x}$. Compute the volume of the region. Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #18

The region \mathcal{R} , bounded by the coordinate axes and the line x + y = 1 is the base of a solid with cross sections perpendicular to the x-axis whose area is given by $A(x) = xe^{-x}$. Compute the volume of the region.

Answer:					-	Answer:					
Round:	1	2	3	4	5	Round:	1	2	3	4	5

Suppose the series $\sum_{n=1}^{\infty} a_n$ is convergent. Compute $\lim_{n \to \infty} \frac{1+a_n}{\cos\left(\frac{1}{n}\right)}$

2025 MA Θ National Convention Calculus Hustle: Problem #19

Suppose the series $\sum_{n=1}^{\infty} a_n$ is convergent. Compute $\lim_{n \to \infty} \frac{1+a_n}{\cos\left(\frac{1}{n}\right)}$

Answer:

Round: 1 2 3 4 5

Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #19

Suppose the series $\sum_{n=1}^{\infty} a_n$ is convergent. Compute $\lim_{n \to \infty} \frac{1+a_n}{\cos\left(\frac{1}{n}\right)}$

2025 MA Θ National Convention Calculus Hustle: Problem #19

Suppose the series $\sum_{n=1}^{\infty} a_n$ is convergent. Compute $\lim_{n \to \infty} \frac{1+a_n}{\cos\left(\frac{1}{n}\right)}$

Answer:						Answer:					
Round:	1	2	3	4	5	Round:	1	2	3	4	5

Compute

$$\lim_{n \to \infty} \frac{\pi}{n} \sum_{k=1}^{n} \frac{k\pi}{n} \sin\left(\frac{k\pi}{n}\right)$$

2025 MA Θ National Convention Calculus Hustle: Problem #20

Compute

$$\lim_{n \to \infty} \frac{\pi}{n} \sum_{k=1}^{n} \frac{k\pi}{n} \sin\left(\frac{k\pi}{n}\right)$$

Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #20

Compute

$$\lim_{n \to \infty} \frac{\pi}{n} \sum_{k=1}^{n} \frac{k\pi}{n} \sin\left(\frac{k\pi}{n}\right)$$

Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #20

$$\lim_{n \to \infty} \frac{\pi}{n} \sum_{k=1}^{n} \frac{k\pi}{n} \sin\left(\frac{k\pi}{n}\right)$$

Answer:					-								
Round:	1	2	3	4	5			Round:	1	2	3	4	5

Compute the total area of the polar regions bounded by the curves C_1 : $r = |\sin \theta|$ and $\mathcal{C}_2: r = -1$

2025 MA Θ National Convention Calculus Hustle: Problem #21

Compute the total area of the polar regions bounded by the curves C_1 : $r = |\sin \theta|$ and $\mathcal{C}_2: r = -1$

Answer:	

Round: 1 $\mathbf{2}$ 3 $\mathbf{5}$ 4

 $2025 \text{ MA}\Theta$ National Convention Calculus Hustle: Problem #21

Compute the total area of the polar regions bounded by the curves C_1 : $r = |\sin \theta|$ and $\mathcal{C}_2: r = -1$

Answer:

Round: 1 $\mathbf{2}$ 3 $\mathbf{4}$ $\mathbf{5}$

2025 MA Θ National Convention Calculus Hustle: Problem #21

Compute the total area of the polar regions bounded by the curves C_1 : $r = |\sin \theta|$ and $\mathcal{C}_2: r = -1$

Answer:					Answer:													
Round:	1	2	3	4	5						Round	:	1	2	3	4	5	

Compute

$$\lim_{x \to 1} \frac{1 - x^5}{1 - x^7}$$

2025 MA Θ National Convention Calculus Hustle: Problem #22

Compute

$$\lim_{x \to 1} \frac{1 - x^5}{1 - x^7}$$

Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #22

Compute

$$\lim_{x \to 1} \frac{1 - x^5}{1 - x^7}$$

Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #22

$$\lim_{x \to 1} \frac{1 - x^5}{1 - x^7}$$

Answer:	_	Answer:										_				
Round:	1	2	3	4	5						Round:	1	2	3	4	5

The function $f(x) = x - \ln(1+x)$ converges to its Maclaurin expansion

$$\sum_{n=0}^{\infty} \frac{(-1)^n x^{n+2}}{n+2}$$

on an appropriate interval of convergence. Let $G(x) = \sin(x^2)f(x)$. Compute $G^{(4)}(0)$.

2025 MA Θ National Convention Calculus Hustle: Problem #23

The function $f(x) = x - \ln(1 + x)$ converges to its Maclaurin expansion

$$\sum_{n=0}^{\infty} \frac{(-1)^n x^{n+2}}{n+2}$$

on an appropriate interval of convergence. Let $G(x) = \sin(x^2) f(x)$. Compute $G^{(4)}(0)$.

Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #23

The function $f(x) = x - \ln(1 + x)$ converges to its Maclaurin expansion

$$\sum_{n=0}^{\infty} \frac{(-1)^n x^{n+2}}{n+2}$$

on an appropriate interval of convergence. Let $G(x) = \sin(x^2) f(x)$. Compute $G^{(4)}(0)$.

Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #23

The function $f(x) = x - \ln(1 + x)$ converges to its Maclaurin expansion

$$\sum_{n=0}^{\infty} \frac{(-1)^n x^{n+2}}{n+2}$$

on an appropriate interval of convergence. Let $G(x) = \sin(x^2)f(x)$. Compute $G^{(4)}(0)$.

Answer:					-	Answer:							
Round:	1	2	3	4	5	Round:	1	2	3	4	5		

Find x(-1), given the following differential equation.

$$\begin{cases} \frac{\mathrm{d}x}{\mathrm{d}t} = -7x\\ x(0) = 2025 \end{cases}$$

2025 MA Θ National Convention Calculus Hustle: Problem #24

Find x(-1), given the following differential equation.

$$\begin{cases} \frac{\mathrm{d}x}{\mathrm{d}t} = -7x\\ x(0) = 2025 \end{cases}$$

Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #24

Find x(-1), given the following differential equation.

$$\begin{cases} \frac{\mathrm{d}x}{\mathrm{d}t} = -7x\\ x(0) = 2025\end{cases}$$

Answer: _____

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #24

Find x(-1), given the following differential equation.

$$\begin{cases} \frac{\mathrm{d}x}{\mathrm{d}t} = -7x\\ x(0) = 2025\end{cases}$$

Answer:											
Round:	1	2	3	4	5	Round:	1	2	3	4	5

Consider f(x) = |1 - |1 - x| - |2 - x||. Put $G(x) = e^{f(x)-2}$. Compute G'(3)

2025 MA Θ National Convention Calculus Hustle: Problem #25

Consider f(x) = |1 - |1 - x| - |2 - x||. Put $G(x) = e^{f(x)-2}$. Compute G'(3)

Answer:

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #25

Consider f(x) = |1 - |1 - x| - |2 - x||. Put $G(x) = e^{f(x)-2}$. Compute G'(3)

Answer:

Round: 1 2 3 4 5

2025 MA Θ National Convention Calculus Hustle: Problem #25

Consider f(x) = |1 - |1 - x| - |2 - x||. Put $G(x) = e^{f(x)-2}$. Compute G'(3)

Answer:					-	Answer:									-
Round:	1	2	3	4	5					Round:	1	2	3	4	5