





Hustle Calculus Test #643



Hustle Calculus Test #643



Hustle Calculus Test #643 Evaluate $\lim_{x\to 0} \left[\frac{\sin 4x}{x} \right]$.

#1 Calculus - Hustle MAO National Convention 2018

Evaluate
$$\lim_{x\to 0} \left[\frac{\sin 4x}{x} \right]$$
.

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#1 Calculus - HustleMAO National Convention 2018

Evaluate $\lim_{x\to 0} \left[\frac{\sin 4x}{x} \right]$.

#1 Calculus – Hustle MAO National Convention 2018

Evaluate
$$\lim_{x\to 0} \left[\frac{\sin 4x}{x} \right]$$
.

Answer : _____

Round 1 2 3 4 5

Answer : _____

Evaluate $\lim_{x\to 0} \left[\frac{\ln(1+x)}{x} \right]$.

#2 Calculus – Hustle MAO National Convention 2018

Evaluate
$$\lim_{x\to 0} \left[\frac{\ln(1+x)}{x} \right]$$
.

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#2 Calculus – Hustle MAO National Convention 2018

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#2 Calculus – Hustle MAO National Convention 2018

Evaluate
$$\lim_{x\to 0} \left[\frac{\ln(1+x)}{x} \right]$$
.

Answer : _____

Round 1 2 3 4 5

Answer : _____

Find
$$\frac{dy}{dx}$$
 if $y = \frac{xe^x - x^2}{x + e^x}$.

#3 Calculus – Hustle MAO National Convention 2018

Find
$$\frac{dy}{dx}$$
 if $y = \frac{xe^x - x^2}{x + e^x}$.

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#3 Calculus – Hustle MAO National Convention 2018

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#3 Calculus – Hustle MAO National Convention 2018

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$$\frac{dy}{dx}$$
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Answer : _____

Round 1 2 3 4 5

Answer : _____

Find $\frac{dy}{dx}$ if $y = \ln \tan x$.

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Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#4 Calculus – Hustle MAO National Convention 2018

Find $\frac{dy}{dx}$ if $y = \ln \tan x$.

#4 Calculus – Hustle MAO National Convention 2018

Find
$$\frac{dy}{dx}$$
 if $y = \ln \tan x$.

Answer : _____

Round 1 2 3 4 5

Answer : _____

#5 Calculus – Hustle MAO National Convention 2018

At what point(s) of the ellipse $16x^2 + 9y^2 = 400$ does the ordinate decrease at the same rate as the abscissa increases?

#5 Calculus – Hustle MAO National Convention 2018

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Answer :	
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Round 1 2 3 4 5

Answer : _____

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#5 Calculus – Hustle MAO National Convention 2018

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Round 1 2 3 4 5

Answer : _____

#6 Calculus – Hustle MAO National Convention 2018

The distance *d* that an image is from a certain lens in terms of *c*, the distance the object is

from the lens, is given by $d = \frac{10c}{c-10}$. If the

object distance is increasing at the rate of 0.2 cm/sec, how fast is the image distance changing when c = 15 cm?

#6 Calculus – Hustle MAO National Convention 2018

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Round 1 2 3 4 5

Answer : _____

Answer : _____

Round 1 2 3 4 5

#6 Calculus – Hustle MAO National Convention 2018

The distance *d* that an image is from a certain lens in terms of *c*, the distance the object is from the lens, is given by $d = \frac{10c}{c-10}$. If the object distance is increasing at the rate of 0.2

cm/sec, how fast is the image distance changing when c = 15 cm?

#6 Calculus – Hustle MAO National Convention 2018

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Answer	-					 -			Ans	wer	· : _				
Round	1	2	3	4	5				Rou	ınd	1	2	3	4	5

#7 Calculus – Hustle MAO National Convention 2018

Find the equation of a normal line to the curve $y = x \ln x$ that is parallel to the straight line 2x-2y+3=0.

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Answer :	
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Round 1 2 3 4 5

Answer : _____

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Answer : _____

Round 1 2 3 4 5

Answer : _____

Evaluate
$$\int \frac{dx}{\sqrt[3]{(b+ax)^2}}$$
.

Evaluate
$$\int \frac{dx}{\sqrt[3]{(b+ax)^2}}$$
.

Answer : _____

Round 1 2 3 4 5

Answer : _____

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#8 Calculus – Hustle MA© National Convention 2018

Evaluate $\int \frac{dx}{\sqrt[3]{(b+ax)^2}}$.

#8 Calculus – Hustle MAO National Convention 2018

Evaluate
$$\int \frac{dx}{\sqrt[3]{(b+ax)^2}}$$
.

Answer : _____

Round 1 2 3 4 5

Answer : _____

Evaluate $\int \frac{1+2x^2}{x^2(1+x^2)} dx$.

Evaluate
$$\int \frac{1+2x^2}{x^2(1+x^2)} dx$$
.

Answer : _____

Round 1 2 3 4 5

Answer : _____

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#9 Calculus – Hustle MAO National Convention 2018

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#9 Calculus – Hustle MAO National Convention 2018

Evaluate
$$\int \frac{1+2x^2}{x^2(1+x^2)} dx$$
.

Answer : _____

Round 1 2 3 4 5

Answer : _____

Evaluate
$$\int \frac{5x^2 + 2x - 3}{x + 2} dx$$
.

#10 Calculus – Hustle MAO National Convention 2018

Evaluate
$$\int \frac{5x^2 + 2x - 3}{x + 2} dx$$
.

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#10 Calculus – Hustle MAO National Convention 2018

Evaluate $\int \frac{5x^2 + 2x - 3}{x + 2} dx$.

#10 Calculus – Hustle MAO National Convention 2018

Evaluate
$$\int \frac{5x^2 + 2x - 3}{x + 2} dx$$
.

Answer : _____

Round 1 2 3 4 5

Answer : _____

Evaluate
$$\frac{d}{dx} \int_{5}^{x^2} \sqrt{t^2 + 3t + 1} dt$$
.

#11 Calculus – Hustle MAO National Convention 2018

Evaluate $\frac{d}{dx} \int_{5}^{x^2} \sqrt{t^2 + 3t + 1} dt$.

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#11 Calculus - Hustle MAO National Convention 2018

Evaluate $\frac{d}{dx} \int_{5}^{x^2} \sqrt{t^2 + 3t + 1} dt$.

#11 Calculus – Hustle MAO National Convention 2018

Evaluate
$$\frac{d}{dx} \int_{5}^{x^2} \sqrt{t^2 + 3t + 1} dt$$
.

Answer : _____

Round 1 2 3 4 5

Answer : _____

#12 Calculus – Hustle MAO National Convention 2018

Evaluate $\int e^x \cos x dx$.

#12 Calculus – Hustle MAO National Convention 2018

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Answer : _____

Round 1 2 3 4 5

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#12 Calculus – Hustle MAO National Convention 2018

Evaluate $\int e^x \cos x dx$.

#12 Calculus – Hustle MAO National Convention 2018

Evaluate $\int e^x \cos x dx$.

Answer : _____

Round 1 2 3 4 5

Answer : _____

Evaluate
$$\int \frac{2x-34}{3x^2-11x-4} dx$$
.

#13 Calculus – Hustle MAO National Convention 2018

Evaluate
$$\int \frac{2x-34}{3x^2-11x-4} dx$$
.

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#13 Calculus – Hustle MAO National Convention 2018

Evaluate $\int \frac{2x-34}{3x^2-11x-4} dx$.

#13 Calculus - Hustle MAO National Convention 2018

Evaluate
$$\int \frac{2x-34}{3x^2-11x-4} dx$$
.

Answer : _____

Round 1 2 3 4 5

Answer : _____

Evaluate $\int_{-a}^{a} \frac{dx}{\sqrt{a^2 - x^2}}$.

#14 Calculus – Hustle MAO National Convention 2018

Evaluate
$$\int_{-a}^{a} \frac{dx}{\sqrt{a^2 - x^2}}$$
.

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#14 Calculus – Hustle MAO National Convention 2018

Evaluate $\int_{-a}^{a} \frac{dx}{\sqrt{a^2 - x^2}}$.

#14 Calculus - Hustle MAO National Convention 2018

Evaluate
$$\int_{-a}^{a} \frac{dx}{\sqrt{a^2 - x^2}}$$
.

Answer : _____

Round 1 2 3 4 5

Answer : _____

#15 Calculus – Hustle MAO National Convention 2018

Let g(x) be the inverse of f(x). The selected values of f(x) and f'(x) are given in the table below. Find the value of g'(5).

x	0	2	5
f(x)	8	5	3
f'(x)	7	1	4

#15 Calculus – Hustle MAO National Convention 2018

Let g(x) be the inverse of f(x). The selected values of f(x) and f'(x) are given in the table below. Find the value of g'(5).

X	0	2	5
f(x)	8	5	3
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Answer :	
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Round 1 2 3 4 5

#15 Calculus – Hustle MA© National Convention 2018

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Answer	:
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Round 1 2 3 4 5

Answer : _____

#16 Calculus – Hustle MAO National Convention 2018

Find any real values of *x* for which the

derivative of
$$y = \frac{x^2}{\sqrt{x^2 + 1}}$$
 is zero.

#16 Calculus – Hustle MAO National Convention 2018

Find any real values of *x* for which the derivative of $y = \frac{x^2}{\sqrt{x^2 + 1}}$ is zero.

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#16 Calculus – Hustle MAO National Convention 2018

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#16 Calculus – Hustle MAO National Convention 2018

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Answer : _____

Round 1 2 3 4 5

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#17 Calculus – Hustle MAO National Convention 2018

Find the *y*-intercept of the line normal to the curve $y = 3x - x^3$ at (3, -18).

#17 Calculus – Hustle MAO National Convention 2018

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Answer : _____

Round 1 2 3 4 5

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#17 Calculus – Hustle MAO National Convention 2018

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Round 1 2 3 4 5

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#18 Calculus – Hustle MAO National Convention 2018

The illuminance *I*, which is positive, at a point is inversely proportional to the square of the distance *x* from the source. Find lim *I*.

#18 Calculus – Hustle MAO National Convention 2018

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Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

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Answer : _____

Round 1 2 3 4 5

Answer : _____

#19 Calculus – Hustle MAO National Convention 2018

The strength of a rectangular beam is proportional to the product of its width and the square of its depth. Find the dimensions, in inches, of the strongest beam that can be cut from a circular log 16 inches in diameter.

#19 Calculus - Hustle MAO National Convention 2018

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Answer	;	
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Round 1 2 3 4 5

Answer : _____

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Answer	:	
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Round 1 2 3 4 5

Answer : _____

#20 Calculus – Hustle MAO National Convention 2018

Let $f(x) = x - x^2$ and g(x) = ax. Determine *a* so that the region above the graph of *g* and below the graph of *f* has area $\frac{9}{2}$.

#20 Calculus – Hustle MAO National Convention 2018

Let $f(x) = x - x^2$ and g(x) = ax. Determine *a* so that the region above the graph of *g* and below the graph of *f* has area $\frac{9}{2}$.

Answer	:	
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Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#20 Calculus – Hustle MAO National Convention 2018

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Answer : _____

Round 1 2 3 4 5

Answer : _____

#21 Calculus – Hustle MAO National Convention 2018

Determine the derivative f'(x) of $f(x) = \sin[\sin(\sin x)]$.

#21 Calculus – Hustle MAΘ National Convention 2018

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Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#21 Calculus – Hustle MAO National Convention 2018

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#21 Calculus – Hustle MAO National Convention 2018

Determine the derivative f'(x) of $f(x) = \sin[\sin(\sin x)]$.

Answer : _____

Round 1 2 3 4 5

Answer : _____

#22 Calculus – Hustle MAO National Convention 2018

Determine the derivative f'(x) of

 $f(x) = \frac{\sin^2 x}{\sin x^2}.$

#22 Calculus – Hustle MAO National Convention 2018

Determine the derivative f'(x) of

$$f(x) = \frac{\sin^2 x}{\sin x^2}.$$

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#22 Calculus – Hustle MA© National Convention 2018

Determine the derivative f'(x) of

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#22 Calculus – Hustle MAO National Convention 2018

Determine the derivative f'(x) of

$$f(x) = \frac{\sin^2 x}{\sin x^2}.$$

Answer : _____

Round 1 2 3 4 5

Answer : _____

#23 Calculus – Hustle MAO National Convention 2018

Find the average value of $f(x) = 2x^2 + 3x + 3$ in the interval [1,4].

#23 Calculus – Hustle MAO National Convention 2018

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Answer	:	
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Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#23 Calculus - Hustle MAO National Convention 2018

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#23 Calculus – Hustle MAO National Convention 2018

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Answer : _____

Round 1 2 3 4 5

Answer : _____

#24 Calculus – Hustle MAO National Convention 2018

Find the volume of the solid generated by revolving about the x-axis the area bounded by the parabolas $y^2 = 8x$ and $8y = x^2$.

#24 Calculus – Hustle MAO National Convention 2018

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Answer :	
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Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#24 Calculus – Hustle MAO National Convention 2018

Find the volume of the solid generated by revolving about the x-axis the area bounded by the parabolas $y^2 = 8x$ and $8y = x^2$.

#24 Calculus – Hustle MAO National Convention 2018

Find the volume of the solid generated by revolving about the x-axis the area bounded by the parabolas $y^2 = 8x$ and $8y = x^2$.

Answer : _____

Round 1 2 3 4 5

Answer : _____

#25 Calculus – Hustle MAO National Convention 2018

Solve for y if $\frac{dy}{dx} = \frac{5x+2}{7y}$, y > 0, and y = 1 when x = 2.

#25 Calculus – Hustle MAO National Convention 2018

Solve for y if $\frac{dy}{dx} = \frac{5x+2}{7y}$, y > 0, and y = 1 when x = 2.

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#25 Calculus – Hustle MAO National Convention 2018

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Answer : _____

Round 1 2 3 4 5

Answer : _____