If
$$f(x) = \begin{cases} \sqrt{x+4} & \text{for } x > 4 \\ x^2 - 1 & \text{for } x \le 4 \end{cases}$$

Evaluate f(f(f((-2)))

If f(x) =
$$\begin{cases} \sqrt{x+4} & \text{for } x > 4\\ x^2 - 1 & \text{for } x \le 4 \end{cases}$$

Evaluate f(f(f((-2)))

Answer : _____

Round 1 2 3 4 5

#1 Algebra 2 – Hustle MAΘ National Convention 2022

If f(x) =
$$\begin{cases} \sqrt{x+4} & \text{for } x > 4\\ x^2 - 1 & \text{for } x \le 4 \end{cases}$$

Evaluate f(f(f((-2)))

Answer : _____

Round 1 2 3 4 5

#1 Algebra 2 – HustleMAO National Convention 2022

If f(x) = $\begin{cases} \sqrt{x+4} & for \ x > 4 \\ x^2 - 1 & for \ x \le 4 \end{cases}$

Evaluate f(f(f((-2)))

Answer	:	

Round 1 2 3 4 5

Answer : _____

-3x +2y +4z =10 - y - 2z =8 7x +3y+2z = -2

Find the sum of x + y + z

-3x +2y +4z =10 - y - 2z =8 7x +3y+2z = -2

Find the sum of x + y + z

Answer : _____

Round 1 2 3 4 5

Round 1 2 3 4 5

Answer : _____

#2 Algebra 2 – Hustle MAΘ National Convention 2022

-3x +2y +4z =10 - y - 2z =8 7x +3y+2z = -2

Find the sum of x + y + z

#2 Algebra 2 – Hustle

MAO National Convention 2022

-3x + 2y + 4z = 10- y - 2z = 8 7x + 3y+2z = -2

J

Find the sum of x + y + z

Answer	:	

Round 1 2 3 4 5

Answer : _____

Determine the sum of the reciprocal of the roots for the following polynomial equation:

$$x^3 - 3x + 2 = 0$$

Determine the sum of the reciprocal of the roots for the following polynomial equation:

$$x^3 - 3x + 2 = 0$$

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#3 Algebra 2 – Hustle MAΘ National Convention 2022

Determine the sum of the reciprocal of the roots for the following polynomial equation:

 $x^3 - 3x + 2 = 0$

#3 Algebra 2 – Hustle MAO National Convention 2022

Determine the sum of the reciprocal of the roots for the following polynomial equation:

 $x^3 - 3x + 2 = 0$

Answer :	

Round 1 2 3 4 5

Answer : _____

Determine the sum of the first 10 numbers in an arithmetic sequence with $a_1 = -3$ and $a_{17} = 29$?

Determine the sum of the first 10 numbers in an arithmetic sequence with $a_1 = -3$ and $a_{17} = 29$?

Answer	٠	
	٠	

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#4 Algebra 2 – Hustle MAΘ National Convention 2022

Determine the sum of the first 10 numbers in an arithmetic sequence with $a_1 = -3$ and $a_{17} = 29$?

#4 Algebra 2 – Hustle MAΘ National Convention 2022

Determine the sum of the first 10 numbers in an arithmetic sequence with $a_1 = -3$ and $a_{17} = 29$?

Answer : _____

Round 1 2 3 4 5

Answer : _____

What is the value of $\log_2 C^{\frac{4}{3}}$ if $C = \sqrt[3]{\sqrt{8}}$?

What is the value of $\log_2 C^{\frac{4}{3}}$ if $C = \sqrt[3]{\sqrt{8}}$?

Answer	•
AIISWUL	

Round 1 2 3 4 5

Round 1 2 3 4 5

Answer : _____

#5 Algebra 2 – Hustle MAO National Convention 2022

What is the value of $\log_2 C^{\frac{4}{3}}$ if $C = \sqrt[3]{\sqrt{8}}$?

#5 Algebra 2 – Hustle MAO National Convention 2022

What is the value of $\log_2 C^{\frac{4}{3}}$ if $C = \sqrt[3]{\sqrt{8}}$?

Answer : _____

Round 1 2 3 4 5

Answer : _____

Given $4x - \frac{2}{3}y = 8$ and kx - 15y = 17

Find the value of k that makes the two equations perpendicular.

Given $4x - \frac{2}{3}y = 8$ and kx - 15y = 17

Find the value of k that makes the two equations perpendicular.

•		
Answer	٠	
	٠	

Round 1 2 3 4 5

#6 Algebra 2 – Hustle MAΘ National Convention 2022

Given $4x - \frac{2}{3}y = 8$ and kx - 15y = 17

Find the value of k that makes the two equations perpendicular.

Answer : _____

Round 1 2 3 4 5

#6 Algebra 2 – Hustle MAO National Convention 2022

Given $4x - \frac{2}{3}y = 8$ and kx - 15y = 17

Find the value of k that makes the two equations perpendicular.

Answer	:	

Round 1 2 3 4 5

Answer : ____

How many terms are in the expansion of $(a + b + c + d + e)^7$?

How many terms are in the expansion of $(a + b + c + d + e)^7$?

Answer	٠	
	٠	

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#7 Algebra 2 – Hustle MAΘ National Convention 2022

How many terms are in the expansion of $(a + b + c + d + e)^7$?

#7 Algebra 2 – HustleMAΘ National Convention 2022

How many terms are in the expansion of $(a + b + c + d + e)^7$?

Answer : _____

Round 1 2 3 4 5

Answer : _____

The roots of a polynomial H(x) are 2, -2, 3, and 4. The constant term of H(x) is 24. Find the sum of the coefficients of H(x). The roots of a polynomial H(x) are 2, -2, 3, and 4. The constant term of H(x) is 24. Find the sum of the coefficients of H(x).

Answer	٠	
	٠	

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#8 Algebra 2 – Hustle MAΘ National Convention 2022

The roots of a polynomial H(x) are 2, -2, 3, and 4. The constant term of H(x) is 24. Find the sum of the coefficients of H(x).

#8 Algebra 2 – Hustle MAΘ National Convention 2022

The roots of a polynomial H(x) are 2, -2, 3, and 4. The constant term of H(x) is 24. Find the sum of the coefficients of H(x).

Answer : _____

Round 1 2 3 4 5

Answer : ____

$$\frac{3}{x^2 - 5x - 6} = \frac{a}{x - 3} + \frac{b}{x - 2}$$

What is the sum of a + b?

#9 Algebra 2 – Hustle MAO National Convention 2022

$$\frac{3}{x^2 - 5x - 6} = \frac{a}{x - 3} + \frac{b}{x - 2}$$

What is the sum of a + b?

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#9 Algebra 2 – Hustle MAO National Convention 2022

$$\frac{3}{x^2 - 5x - 6} = \frac{a}{x - 3} + \frac{b}{x - 2}$$

What is the sum of a + b?

#9 Algebra 2 – Hustle MAΘ National Convention 2022

$$\frac{3}{x^2 - 5x - 6} = \frac{a}{x - 3} + \frac{b}{x - 2}$$

What is the sum of a + b?

Answer	:	

Round 1 2 3 4 5

Answer : _____

Evaluate $\log_{10} \frac{1}{2} + \log_{10} \frac{2}{3} + \log_{10} \frac{3}{4} + \dots + \log_{10} \frac{99}{100}$

Evaluate

$$\log_{10} \frac{1}{2} + \log_{10} \frac{2}{3} + \log_{10} \frac{3}{4} + \dots + \log_{10} \frac{99}{100}$$

Answer : _____

Round 1 2 3 4 5

Round 1 2 3 4 5

Answer : _____

#10 Algebra 2 – Hustle MAΘ National Convention 2022 #10 Algebra 2 – Hustle

MAO National Convention 2022

Evaluate

1	2	3	99
$\log_{10} \frac{1}{2} + \log_{10} \frac{1}{2}$	$\log_{10} \frac{1}{3} + 10$	$\log_{10}\frac{1}{4} + \cdots$	$+\log_{10}\frac{33}{100}$

Evaluate $\log_{10} \frac{1}{2} + \log_{10} \frac{2}{3} + \log_{10} \frac{3}{4} + \dots + \log_{10} \frac{99}{100}$

Answer : _____

Round 1 2 3 4 5

Answer : _____

Evaluate $\sum_{k=1}^{10} k^3$

Evaluate $\sum_{k=1}^{10} k^3$

Answer : _____

Round 1 2 3 4 5

Answer : _____

#11 Algebra 2 – Hustle MAΘ National Convention 2022

Evaluate $\sum_{k=1}^{10} k^3$

Round 1 2 3 4 5

#11 Algebra 2 – Hustle MAO National Convention 2022

Evaluate $\sum_{k=1}^{10} k^3$

Answer : _____

Round 1 2 3 4 5

Answer : _____

Find the sum of all integers n such that $\lfloor n/3 \rfloor = 4$

Find the sum of all integers n such that $\lfloor n/3 \rfloor = 4$

Answer :	•		
	Answer	٠	
	AIISWUL	٠	

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#12 Algebra 2 – Hustle MAΘ National Convention 2022

Find the sum of all integers n such that $\lfloor n/3 \rfloor = 4$

#12 Algebra 2 – HustleMAO National Convention 2022

Find the sum of all integers n such that $\lfloor n/3 \rfloor = 4$

Answer : _____

Round 1 2 3 4 5

Answer : _____

Find the slant asymptote of

 $f(x) = \frac{(x-2)(3x-1)}{x+1}$

Find the slant asymptote of

$$f(x) = \frac{(x-2)(3x-1)}{x+1}$$

Answer	٠	
11130001	٠	

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#13 Algebra 2 – HustleMAO National Convention 2022

Find the slant asymptote of

 $f(x) = \frac{(x-2)(3x-1)}{x+1}$

#13 Algebra 2 – Hustle MAO National Convention 2022

Find the slant asymptote of

$$f(x) = \frac{(x-2)(3x-1)}{x+1}$$

Answer	:	

Round 1 2 3 4 5

Answer : _____

Evaluate $\log_4(256^{2020})$

Evaluate $\log_4(256^{2020})$

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#14 Algebra 2 – Hustle MAO National Convention 2022

Evaluate $\log_4(256^{2020})$

#14 Algebra 2 – Hustle MAΘ National Convention 2022

Evaluate $\log_4(256^{2020})$

Answer : _____

Round 1 2 3 4 5

Answer : _____

Find the sum of the solutions to

$$\mathbf{x} = \sqrt{2x + 35}$$

Find the sum of the solutions to

$$\mathbf{x} = \sqrt{2x + 35}$$

Answer : _____

Round 1 2 3 4 5

Round 1 2 3 4 5

#15 Algebra 2 – Hustle MAΘ National Convention 2022

Find the sum of the solutions to

 $\mathbf{x} = \sqrt{2x + 35}$

#15 Algebra 2 – Hustle MAΘ National Convention 2022

Answer : _____

Find the sum of the solutions to

$$\mathbf{x} = \sqrt{2x + 35}$$

Answer : _____

Round 1 2 3 4 5

Answer : _____

If $3^x = 6$, find the value of 9^{x-1}

If $3^x = 6$, find the value of 9^{x-1}

Answer : _____

Round 1 2 3 4 5

Round 1 2 3 4 5

#16 Algebra 2 – Hustle MAΘ National Convention 2022

If $3^x = 6$, find the value of 9^{x-1}

#16 Algebra 2 – Hustle MAΘ National Convention 2022

Answer : _____

If $3^x = 6$, find the value of 9^{x-1}

Answer : _____

Round 1 2 3 4 5

Answer : _____

Simplify $\frac{5+12i}{2-3i}$.

Express answer in a + bi form, where a and b are real numbers

Simplify $\frac{5+12i}{2-3i}$.

Express answer in a + bi form, where a and b are real numbers

•	
Answer	•
	•

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#17 Algebra 2 – Hustle MAΘ National Convention 2022

Simplify $\frac{5+12i}{2-3i}$.

Express answer in a + bi form, where a and b are real numbers

#17 Algebra 2 – Hustle MAΘ National Convention 2022

Simplify $\frac{5+12i}{2-3i}$.

Express answer in a + bi form, where a and b are real numbers

Answer : _____

Round 1 2 3 4 5

Answer : _____

For what value(s) of k is x - 1 a factor of

$$x^3 + 3kx^2 + k^2x + k - 1?$$

For what value(s) of k is x - 1 a factor of

$$x^3 + 3kx^2 + k^2x + k - 1?$$

Answer : _____

Round 1 2 3 4 5

#18 Algebra 2 – Hustle MAΘ National Convention 2022

For what value(s) of k is x - 1 a factor of

 $x^3 + 3kx^2 + k^2x + k - 1?$

Answer : _____

Round 1 2 3 4 5

#18 Algebra 2 – HustleMAO National Convention 2022

For what value(s) of k is x - 1 a factor of

 $x^3 + 3kx^2 + k^2x + k - 1?$

Answer : _____

Round 1 2 3 4 5

Answer : _____

Find the area of the conic defined by the equation $4x^2 + 9y^2 - 8x + 90y + 193 = 0$

Find the area of the conic defined by the equation $4x^2 + 9y^2 - 8x + 90y + 193 = 0$

A		
Answer	:	
	•	

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#19 Algebra 2 – Hustle MAΘ National Convention 2022

Find the area of the conic defined by the equation $4x^2 + 9y^2 - 8x + 90y + 193 = 0$

#19 Algebra 2 – Hustle MAΘ National Convention 2022

Find the area of the conic defined by the equation $4x^2 + 9y^2 - 8x + 90y + 193 = 0$

Answer : _____

Round 1 2 3 4 5

Answer : ____

Let $f(x) = x^{10} - 2x^6 + 4$. Find the remainder when f(x) is divided by 7x - 14.

Let $f(x) = x^{10} - 2x^6 + 4$. Find the remainder when f(x) is divided by 7x - 14.

Answer	•	
AIISWCI	٠	

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#20 Algebra 2 – Hustle MAΘ National Convention 2022

Let $f(x) = x^{10} - 2x^6 + 4$. Find the remainder when f(x) is divided by 7x - 14.

#20 Algebra 2 – Hustle MAO National Convention 2022

Let $f(x) = x^{10} - 2x^6 + 4$. Find the remainder when f(x) is divided by 7x - 14.

Answer : _____

Round 1 2 3 4 5

Answer : _____

The circle $x^2 = 6x - 2y + 10 - y^2$ is inscribed within a square. What is the area of the square?

#21 Algebra 2 – Hustle MAO National Convention 2022

The circle $x^2 = 6x - 2y + 10 - y^2$ is inscribed within a square. What is the area of the square?

Answer	٠	
	٠	

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#21 Algebra 2 – Hustle MAΘ National Convention 2022

The circle $x^2 = 6x - 2y + 10 - y^2$ is inscribed within a square. What is the area of the square?

#21 Algebra 2 – Hustle MAO National Convention 2022

The circle $x^2 = 6x - 2y + 10 - y^2$ is inscribed within a square. What is the area of the square?

Answer : _____

Round 1 2 3 4 5

Answer : ___

Find $|(2+2i)^6|$

Find $|(2+2i)^6|$

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#22 Algebra 2 – Hustle MAΘ National Convention 2022

Find $|(2+2i)^6|$

#22 Algebra 2 – Hustle MAΘ National Convention 2022

Find $|(2+2i)^6|$

Answer : _____

Round 1 2 3 4 5

Answer : _____

How many ways can six students stand in a straight line if two students refuse to stand next to one another?

How many ways can six students stand in a straight line if two students refuse to stand next to one another?

•	
Answer :	

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#23 Algebra 2 – Hustle MAΘ National Convention 2022

How many ways can six students stand in a straight line if two students refuse to stand next to one another?

#23 Algebra 2 – Hustle MAΘ National Convention 2022

How many ways can six students stand in a straight line if two students refuse to stand next to one another?

Answer : _____

Round 1 2 3 4 5

Answer : _____

Evaluate the series: $\frac{1}{2} + \frac{2}{6} + \frac{3}{18} + \frac{4}{54} + \dots$

#24 Algebra 2 – Hustle MAO National Convention 2022

Evaluate the series: $\frac{1}{2} + \frac{2}{6} + \frac{3}{18} + \frac{4}{54} + \dots$

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#24 Algebra 2 – Hustle MAΘ National Convention 2022

Evaluate the series: $\frac{1}{2} + \frac{2}{6} + \frac{3}{18} + \frac{4}{54} + \dots$

#24 Algebra 2 – Hustle MAΘ National Convention 2022

Evaluate the series: $\frac{1}{2} + \frac{2}{6} + \frac{3}{18} + \frac{4}{54} + \dots$

Answer : _____

Round 1 2 3 4 5

Answer : _____

Find the eccentricity of the following conic:

$$\frac{(y-3)^2}{25} - \frac{(x+1)^2}{144} = 1$$

Find the eccentricity of the following conic:

$$\frac{(y-3)^2}{25} - \frac{(x+1)^2}{144} = 1$$

Answer : _____

Round 1 2 3 4 5

#25 Algebra 2 – Hustle MAΘ National Convention 2022

Find the eccentricity of the following conic:

$$\frac{(y-3)^2}{25} - \frac{(x+1)^2}{144} = 1$$

Answer : _____

Round 1 2 3 4 5

#25 Algebra 2 – Hustle MAO National Convention 2022

Find the eccentricity of the following conic:

$$\frac{(y-3)^2}{25} - \frac{(x+1)^2}{144} = 1$$

Answer : _____

Round 1 2 3 4 5

Answer : _____