#1 Algebra II – HustleMAO National Convention 2007

Find the sum of the roots of $y = 2x^2 - 4x + 1$.

#1 Algebra II – Hustle MA© National Convention 2007

Find the sum of the roots of $y = 2x^2 - 4x + 1$.

Answer	:	

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#1 Algebra II – Hustle MAΘ National Convention 2007

#1 Algebra II – Hustle MAO National Convention 2007

Find the sum of the roots of $y = 2x^2 - 4x + 1$.

Find the sum of the roots of	$y = 2x^2 - 4x + 1$.
------------------------------	-----------------------

Answer : _____

Answer : _____

Round 1 2 3 4 5

Evaluate $\sum_{x=1}^{10} (x(x+1))$.

#2 Algebra II – Hustle MA© National Convention 2007

Evaluate
$$\sum_{x=1}^{10} (x(x+1))$$
.

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#2 Algebra II – Hustle MAΘ National Convention 2007

Evaluate $\sum_{x=1}^{10} (x(x+1))$.

#2 Algebra II – Hustle MA© National Convention 2007

Evaluate
$$\sum_{x=1}^{10} (x(x+1))$$
.

Answer : _____

Round 1 2 3 4 5

#3 Algebra II – Hustle MA© National Convention 2007

What is the value of x that satisfies the following equations:

v+2w+4x + y = 4 3w + x-2y+z = 2v-w + 3y-z = 2

#3 Algebra II – Hustle MAO National Convention 2007

What is the value of x that satisfies the following equations: v+2w+4x + y = 43w + x - 2y + z = 2v-w + 3y - z = 2

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

#3 Algebra II – Hustle MA© National Convention 2007

What is the value of x that satisfies the following equations:

v + 2w + 4x + y = 4 3w + x - 2y + z = 2v - w + 3y - z = 2

#3 Algebra II – Hustle MA© National Convention 2007

What is the value of x that satisfies the following equations: v + 2w + 4x + y = 43w + x - 2y + z = 2

v - w + 3y - z = 2

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

#4 Algebra II – Hustle MA© National Convention 2007

Susan can paint a barn in 2 days. Pam can paint a barn in 4 days. If they work together, how many barns can they paint in 40 days?

#4 Algebra II – Hustle MA© National Convention 2007

Susan can paint a barn in 2 days. Pam can paint a barn in 4 days. If they work together, how many barns can they paint in 40 days?

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#4 Algebra II – Hustle MA© National Convention 2007

Susan can paint a barn in 2 days. Pam can paint a barn in 4 days. If they work together, how many barns can they paint in 40 days?

#4 Algebra II – Hustle MA© National Convention 2007

Susan can paint a barn in 2 days. Pam can paint a barn in 4 days. If they work together, how many barns can they paint in 40 days?

Answer	:	

Round 1 2 3 4 5

Answer : _____

#5 Algebra II – Hustle MA© National Convention 2007

What is the minimum value $|x^2 - 1| + 4$ can attain?

#5 Algebra II – Hustle MAO National Convention 2007

What is the minimum value $|x^2 - 1| + 4$ can attain?

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#5 Algebra II – Hustle MAΘ National Convention 2007

What is the minimum value $|x^2 - 1| + 4$ can attain?

#5 Algebra II – Hustle MA@ National Convention 2007

What is the minimum value $|x^2 - 1| + 4$ can attain?

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

#6 Algebra II – Hustle MA© National Convention 2007

Find the sum of all values of x that satisfy 3 |x-1| - |x-1| + 4 |x-1| = 18

#6 Algebra II – Hustle MAO National Convention 2007

Find the sum of all values of x that satisfy 3 |x-1| - |x-1| + 4 |x-1| = 18

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#6 Algebra II – Hustle MAO National Convention 2007

Find the sum of all values of x that satisfy 3 |x-1| - |x-1| + 4 |x-1| = 18

#6 Algebra II – Hustle MA© National Convention 2007

Find the sum of all values of x that satisfy 3 |x-1| - |x-1| + 4 |x-1| = 18

Answer : _____

Round 1 2 3 4 5

Answer : _____

#7 Algebra II – HustleMAO National Convention 2007

How many elements of the set $\{41^2 - 17^2, 19^4 - 16, 18^2 + 22^2, 12^3 + 11^3\}$ are prime?

#7 Algebra II – Hustle MA© National Convention 2007

How many elements of the set $\{41^2 - 17^2, 19^4 - 16, 18^2 + 22^2, 12^3 + 11^3\}$ are prime?

Answer :	Answer :

Round 1 2 3 4 5

Round	1	2	3	4	-5

#7 Algebra II – Hustle MAΘ National Convention 2007

How many elements of the set $\{41^2 - 17^2, 19^4 - 16, 18^2 + 22^2, 12^3 + 11^3\}$ are prime?

#7 Algebra II – Hustle MAΘ National Convention 2007

How many elements of the set $\{41^2 - 17^2, 19^4 - 16, 18^2 + 22^2, 12^3 + 11^3\}$ are prime?

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

#8 Algebra II – Hustle MA© National Convention 2007

Let f(x) = 4x + 2 and $g(x) = 2[f^{-1}(x)] + 4$. Find $g(g^{-1}(1))$

#8 Algebra II – Hustle MA© National Convention 2007

Let f(x) = 4x + 2 and $g(x) = 2[f^{-1}(x)] + 4$. Find $g(g^{-1}(1))$

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#8 Algebra II – Hustle MAO National Convention 2007

Let f(x) = 4x + 2 and $g(x) = 2[f^{-1}(x)] + 4$. Find $g(g^{-1}(1))$

#8 Algebra II – Hustle MA© National Convention 2007

Let f(x) = 4x + 2 and $g(x) = 2[f^{-1}(x)] + 4$. Find $g(g^{-1}(1))$

Answer	:	
--------	---	--

Round 1 2 3 4 5

Answer : _____

#9 Algebra II – Hustle MAΘ National Convention 2007

Evaluate
$$\sqrt{\pi + \sqrt{\pi + \sqrt{\pi + \dots}}}$$

#9 Algebra II – Hustle MAΘ National Convention 2007

Evaluate
$$\sqrt{\pi + \sqrt{\pi + \sqrt{\pi + \dots}}}$$

Answer : _____

Round 1 2 3 4 5

Answer	

Round 1 2 3 4 5

#9 Algebra II – Hustle MA© National Convention 2007

Evaluate $\sqrt{\pi + \sqrt{\pi + \dots}}$

#9 Algebra II – Hustle MA© National Convention 2007

Evaluate
$$\sqrt{\pi + \sqrt{\pi + \sqrt{\pi + \dots}}}$$

Answer : _____

Answer : _____

Round 1 2 3 4 5

#10 Algebra II – Hustle MA© National Convention 2007

Find probability that the sum of 5 positive randomly chosen integers is even.

#10 Algebra II – Hustle MA© National Convention 2007

Find probability that the sum of 5 positive randomly chosen integers is even.

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#10 Algebra II – Hustle MA© National Convention 2007

Find probability that the sum of 5 positive randomly chosen integers is even.

#10 Algebra II – Hustle MAO National Convention 2007

Find probability that the sum of 5 positive randomly chosen integers is even.

Answer : _____

Round 1 2 3 4 5

Answer : _____

#11 Algebra II – Hustle MA© National Convention 2007

What is the smallest integer that is greater than $\sqrt{(69)(71)}$?

#11 Algebra II – Hustle MA© National Convention 2007

What is the smallest integer that is greater than $\sqrt{(69)(71)}$?

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#11 Algebra II – Hustle MA@ National Convention 2007

What is the smallest integer that is greater than $\sqrt{(69)(71)}$?

#11 Algebra II – Hustle MA© National Convention 2007

What is the smallest integer that is greater than $\sqrt{(69)(71)}$?

Answer	:	

Round 1 2 3 4 5

Answer : _____

 $\sum_{x=0}^{10} \sqrt{x^2 y} = 220. \text{ Find } y.$

#12 Algebra II – Hustle MA© National Convention 2007

$$\sum_{x=0}^{10} \sqrt{x^2 y} = 220.$$
 Find y.

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#12 Algebra II – Hustle MA@ National Convention 2007

$$\sum_{x=0}^{10} \sqrt{x^2 y} = 220.$$
 Find y.

#12 Algebra II – Hustle MAΘ National Convention 2007

$$\sum_{x=0}^{10} \sqrt{x^2 y} = 220.$$
 Find y.

Answer : _____

Round 1 2 3 4 5

Answer : _____

#13 Algebra II – Hustle MA© National Convention 2007

Find the distance between (3,1) and (4,7).

#13 Algebra II – Hustle MA© National Convention 2007

Find the distance between (3,1) and (4,7).

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#13 Algebra II – Hustle MA© National Convention 2007

Find the distance between (3,1) and (4,7).

#13 Algebra II – Hustle MA© National Convention 2007

Find the distance between (3,1) and (4,7).

Answer : _____

Round 1 2 3 4 5

Answer : _____

#14 Algebra II – Hustle MA© National Convention 2007

How many distinct <u>*rational*</u> roots does $y = x^2 - 2\sqrt{2}x + 2$ have?

#14 Algebra II – Hustle MA© National Convention 2007

How many distinct *rational* roots does $y = x^2 - 2\sqrt{2}x + 2$ have?

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#14 Algebra II – Hustle MA© National Convention 2007

How many distinct *rational* roots does $y = x^2 - 2\sqrt{2}x + 2$ have?

#14 Algebra II – Hustle MA© National Convention 2007

How many distinct *rational* roots does $y = x^2 - 2\sqrt{2}x + 2$ have?

Answer : _____

Round 1 2 3 4 5

Answer : _____

#15 Algebra II – Hustle MA© National Convention 2007

Find the slope of any line that is perpendicular to y = 2x.

#15 Algebra II – Hustle MA© National Convention 2007

Find the slope of any line that is perpendicular to y = 2x.

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#15 Algebra II – Hustle MAΘ National Convention 2007

Find the slope of any line that is perpendicular to y = 2x.

#15 Algebra II – Hustle MA© National Convention 2007

Find the slope of any line that is perpendicular to y = 2x.

Answer : _____

Round 1 2 3 4 5

Answer : _____

#16 Algebra II – Hustle MA© National Convention 2007

A crazy store owner puts a pair of shoes on sale for 40% off, but realizes this is too much and marks them up 20%. After people stop buying them, he realizes he needs to lower the price another 50%. If the shoes then cost \$9, to the nearest dollar, how much did they originally cost?

#16 Algebra II – Hustle MA© National Convention 2007

A crazy store owner puts a pair of shoes on sale for 40% off, but realizes this is too much and marks them up 20%. After people stop buying them, he realizes he needs to lower the price another 50%. If the shoes then cost \$9, to the nearest dollar, how much did they originally cost?

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

#16 Algebra II – Hustle MA© National Convention 2007

A crazy store owner puts a pair of shoes on sale for 40% off, but realizes this is too much and marks them up 20%. After people stop buying them, he realizes he needs to lower the price another 50%. If the shoes then cost \$9, to the nearest dollar, how much did they originally cost?

#16 Algebra II – Hustle MA© National Convention 2007

A crazy store owner puts a pair of shoes on sale for 40% off, but realizes this is too much and marks them up 20%. After people stop buying them, he realizes he needs to lower the price another 50%. If the shoes then cost \$9, to the nearest dollar, how much did they originally cost?

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

#17 Algebra II – Hustle MA© National Convention 2007

The sum of two numbers is $\sqrt{48}$ and their product is 4. Find the sum of the squares of these numbers.

#17 Algebra II – Hustle MAO National Convention 2007

The sum of two numbers is $\sqrt{48}$ and their product is 4. Find the sum of the squares of these numbers.

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#17 Algebra II – Hustle MAΘ National Convention 2007

The sum of two numbers is $\sqrt{48}$ and their product is 4. Find the sum of the squares of these numbers.

#17 Algebra II – Hustle MAO National Convention 2007

The sum of two numbers is $\sqrt{48}$ and their product is 4. Find the sum of the squares of these numbers.

:	
	:

Round 1 2 3 4 5

Answer : _____

#18 Algebra II – Hustle MA© National Convention 2007

Simplify $(4+2i)^2 - (4-2i)^2$ completely, where $i = \sqrt{-1}$.

#18 Algebra II – Hustle MA© National Convention 2007

Simplify $(4+2i)^2 - (4-2i)^2$ completely, where $i = \sqrt{-1}$.

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

#18 Algebra II – Hustle MAΘ National Convention 2007

Simplify $(4+2i)^2 - (4-2i)^2$ completely, where $i = \sqrt{-1}$.

#18 Algebra II – Hustle MA© National Convention 2007

Simplify $(4+2i)^2 - (4-2i)^2$ completely, where $i = \sqrt{-1}$.

5

Answer :						Answer :	Answer :					
D 1	1	•	•		_		1	•	•			
Round	T	2	3	4	5	Round	T	2	3	4		

#19 Algebra II – Hustle MA© National Convention 2007

Simplify $\frac{x^4 y^2 zx}{xyz^4}$ without using negative exponents, x, y, z > 0.

#19 Algebra II – Hustle MAO National Convention 2007

Simplify $\frac{x^4 y^2 zx}{xyz^4}$ without using negative exponents, x, y, z > 0.

Answer : _____ Answer : _____

Round 1 2 3 4 5

Round 1 2 3 4 5

#19 Algebra II – Hustle MAO National Convention 2007

Simplify $\frac{x^4 y^2 zx}{xyz^4}$ without using negative exponents, x, y, z > 0.

#19 Algebra II – HustleMAO National Convention 2007

Simplify $\frac{x^4 y^2 zx}{xyz^4}$ without using negative exponents, x, y, z > 0.

Answer	:	
--------	---	--

Answer : _____

Round 1 2 3 4 5

#20 Algebra II – Hustle MA© National Convention 2007

Find the point or points of intersection of y = 2x + 1 and $y = -x^2$.

#20 Algebra II – Hustle MA© National Convention 2007

Find the point or points of intersection of y = 2x + 1 and $y = -x^2$.

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#20 Algebra II – Hustle MA© National Convention 2007

Find the point or points of intersection of y = 2x + 1 and $y = -x^2$.

#20 Algebra II – Hustle MA© National Convention 2007

Find the point or points of intersection of y = 2x + 1 and $y = -x^2$.

Answer : _____

Round 1 2 3 4 5

Answer : _____

#21 Algebra II – Hustle MA© National Convention 2007

A triangle has sides of lengths x + 2y - 1, y + 4and y - x + 4. Find its perimeter.

#21 Algebra II – Hustle MA© National Convention 2007

A triangle has sides of lengths x + 2y - 1, y + 4and y - x + 4. Find its perimeter.

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#21 Algebra II – Hustle MA© National Convention 2007

A triangle has sides of lengths x + 2y - 1, y + 4and y - x + 4. Find its perimeter.

#21 Algebra II – Hustle MA© National Convention 2007

A triangle has sides of lengths x + 2y - 1, y + 4and y - x + 4. Find its perimeter.

Answer : _____

Answer : _____

Round 1 2 3 4 5

#22 Algebra II – Hustle MA© National Convention 2007

A rectangle has area 17 and perimeter 18. Find the length of the longer side.

#22 Algebra II – Hustle MA© National Convention 2007

A rectangle has area 17 and perimeter 18. Find the length of the longer side.

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#22 Algebra II – Hustle MA© National Convention 2007

A rectangle has area 17 and perimeter 18. Find the length of the longer side.

#22 Algebra II – Hustle MAO National Convention 2007

A rectangle has area 17 and perimeter 18. Find the length of the longer side.

Answer : _____

Round 1 2 3 4 5

Answer : _____

#23 Algebra II – Hustle MA© National Convention 2007

Using $\log 2 \approx 0.3$, tell which is larger, 4^{10} or 5^9 ?

#23 Algebra II – Hustle MA© National Convention 2007

Using $\log 2 \approx 0.3$, tell which is larger, 4^{10} or 5^9 ?

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#23 Algebra II – Hustle MAΘ National Convention 2007

Using $\log 2 \approx 0.3$, tell which is larger, 4^{10} or 5^9 ?

#23 Algebra II – Hustle MA© National Convention 2007

Using $\log 2 \approx 0.3$, tell which is larger, 4^{10} or 5^9 ?

Answer : _____

Round 1 2 3 4 5

Answer : _____

#24 Algebra II – Hustle MA© National Convention 2007

If 7 mutant egg-laying gophers can lay 14 eggs in 14 minutes, then how many eggs can 91 of these gophers lay in 28 minutes?

#24 Algebra II – Hustle MA© National Convention 2007

If 7 mutant egg-laying gophers can lay 14 eggs in 14 minutes, then how many eggs can 91 of these gophers lay in 28 minutes?

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#24 Algebra II – Hustle MA© National Convention 2007

If 7 mutant egg-laying gophers can lay 14 eggs in 14 minutes, then how many eggs can 91 of these gophers lay in 28 minutes?

#24 Algebra II – Hustle MA© National Convention 2007

If 7 mutant egg-laying gophers can lay 14 eggs in 14 minutes, then how many eggs can 91 of these gophers lay in 28 minutes?

Answer :	Answer :

Round 1 2 3 4 5

#25 Algebra II – Hustle MA© National Convention 2007

What is the slope of the line x + 2y - 1 = 0?

#25 Algebra II – Hustle MA© National Convention 2007

What is the slope of the line x + 2y - 1 = 0?

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#25 Algebra II – Hustle MAΘ National Convention 2007

What is the slope of the line x + 2y - 1 = 0?

#25 Algebra II – Hustle MA© National Convention 2007

What is the slope of the line x + 2y - 1 = 0?

Answer : _____

Round 1 2 3 4 5

Answer : _____