#1 Trigonometry - Hustle MA® National Convention 2011

Evaluate: $\sin^2 12^\circ + \sin^2 40^\circ + \sin^2 50^\circ + \sin^2 78^\circ$

#1 Trigonometry – Hustle MA® National Convention 2011

Evaluate: $\sin^2 12^\circ + \sin^2 40^\circ + \sin^2 50^\circ + \sin^2 78^\circ$

Answer : _____

Round 1 2 3 4 5

#1 Trigonometry - Hustle MA⊕ National Convention 2011

Evaluate: $\sin^2 12^\circ + \sin^2 40^\circ + \sin^2 50^\circ + \sin^2 78^\circ$

Answer : _____

Round 1 2 3 4 5

#1 Trigonometry - Hustle MA⊕ National Convention 2011

Evaluate: $\sin^2 12^\circ + \sin^2 40^\circ + \sin^2 50^\circ + \sin^2 78^\circ$

Answer : _____

Answer : _____

Round 1 2 3 4 5

#2 Trigonometry - Hustle
MA® National Convention 2011

In $\triangle ABC$, a=4, b=6, and $\angle C=120^\circ$. Find the length of the altitude to the longest side of the triangle.

#2 Trigonometry - Hustle MA⊕ National Convention 2011

In $\triangle ABC$, a=4, b=6, and $\angle C=120^\circ$. Find the length of the altitude to the longest side of the triangle.

Answer	1	
7 1113 VV C1	1	

Round 1 2 3 4 5

#2 Trigonometry - Hustle MA⊕ National Convention 2011

In $\triangle ABC$, a=4, b=6, and $\angle C=120^\circ$. Find the length of the altitude to the longest side of the triangle.

Answer : _____

Round 1 2 3 4 5

#2 Trigonometry - Hustle MA⊕ National Convention 2011

In $\triangle ABC$, a=4, b=6, and $\angle C=120^\circ$. Find the length of the altitude to the longest side of the triangle.

Answer : ______

Answer : _____

Round 1 2 3 4 5

#3 Trigonometry - Hustle MA⊕ National Convention 2011

Evaluate: $\cos\left(2\cos^{-1}\left(\frac{4}{5}\right)\right)$

#3 Trigonometry - Hustle MA⊕ National Convention 2011

Evaluate: $\cos\left(2\cos^{-1}\left(\frac{4}{5}\right)\right)$

Answer : _____

Round 1 2 3 4 5

#3 Trigonometry - Hustle MA⊕ National Convention 2011

Evaluate: $\cos\left(2\cos^{-1}\left(\frac{4}{5}\right)\right)$

Answer : _____

Round 1 2 3 4 5

#3 Trigonometry – Hustle MA⊕ National Convention 2011

Evaluate: $\cos\left(2\cos^{-1}\left(\frac{4}{5}\right)\right)$

Answer : _____

Answer : _____

Round 1 2 3 4 5

#4 Trigonometry - Hustle MA⊕ National Convention 2011

Find the value of $|\cos(x-y)|$, given that

$$\sin x = \frac{5}{13}$$
, $\cos y = -\frac{3}{5}$, $0 < x < \frac{\pi}{2}$, and $\pi < y < \frac{3\pi}{2}$.

#4 Trigonometry - Hustle MA⊕ National Convention 2011

Find the value of $|\cos(x-y)|$, given that

$$\sin x = \frac{5}{13}$$
, $\cos y = -\frac{3}{5}$, $0 < x < \frac{\pi}{2}$, and $\pi < y < \frac{3\pi}{2}$.

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#4 Trigonometry - Hustle MA⊕ National Convention 2011

Find the value of $|\cos(x-y)|$, given that

$$\sin x = \frac{5}{13}$$
, $\cos y = -\frac{3}{5}$, $0 < x < \frac{\pi}{2}$, and $\pi < y < \frac{3\pi}{2}$.

#4 Trigonometry - Hustle MA⊕ National Convention 2011

Find the value of $|\cos(x-y)|$, given that

$$\sin x = \frac{5}{13}$$
, $\cos y = -\frac{3}{5}$, $0 < x < \frac{\pi}{2}$, and $\pi < y < \frac{3\pi}{2}$.

Answer : _____

Answer : _____

Round 1 2 3 4 5

#5 Trigonometry - Hustle MA⊕ National Convention 2011

How many times will the graph of

$$f(x) = 5\cos\left(\frac{x}{2}\right) + 1$$
 intersect the *x*-axis on the interval $[-2\pi, 2\pi]$?

#5 Trigonometry - Hustle MA⊕ National Convention 2011

How many times will the graph of

$$f(x) = 5\cos\left(\frac{x}{2}\right) + 1$$
 intersect the *x*-axis on the interval $[-2\pi, 2\pi]$?

Answer:	

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#5 Trigonometry - Hustle MA⊕ National Convention 2011

How many times will the graph of

$$f(x) = 5\cos\left(\frac{x}{2}\right) + 1$$
 intersect the *x*-axis on the interval $[-2\pi, 2\pi]$?

#5 Trigonometry - Hustle MA⊕ National Convention 2011

How many times will the graph of

$$f(x) = 5\cos\left(\frac{x}{2}\right) + 1$$
 intersect the *x*-axis on the interval $[-2\pi, 2\pi]$?

Answer : _____

Answer : _____

Round 1 2 3 4 5

#6 Trigonometry - Hustle MA⊕ National Convention 2011

If $\sin x + \cos x = A\sin(x+B)$ for all real x, where A and B are real numbers, A > 0, and B > 0, find the minimum value of the product AB.

#6 Trigonometry - Hustle MA@ National Convention 2011

If $\sin x + \cos x = A\sin(x+B)$ for all real x, where A and B are real numbers, A > 0, and B > 0, find the minimum value of the product AB.

Answer:	
THIS WULL	

Round 1 2 3 4 5

#6 Trigonometry - Hustle MA⊕ National Convention 2011

If $\sin x + \cos x = A\sin(x+B)$ for all real x, where A and B are real numbers, A > 0, and B > 0, find the minimum value of the product AB.

Answer : _____

Round 1 2 3 4 5

#6 Trigonometry - Hustle MA® National Convention 2011

If $\sin x + \cos x = A\sin(x+B)$ for all real x, where A and B are real numbers, A > 0, and B > 0, find the minimum value of the product AB.

Answer : ______

Round 1 2 3 4 5

Answer:____

#7 Trigonometry - Hustle MA⊕ National Convention 2011

The minute and hour hands of a clock are perpendicular to each other twice between 5 pm and 6 pm. Compute the elapsed amount of time, in minutes and seconds, between these two times, correct to the nearest second.

#7 Trigonometry - Hustle MA® National Convention 2011

The minute and hour hands of a clock are perpendicular to each other twice between 5 pm and 6 pm. Compute the elapsed amount of time, in minutes and seconds, between these two times, correct to the nearest second.

_		
Answer	•	

Round 1 2 3 4 5

#7 Trigonometry - Hustle MA⊕ National Convention 2011

The minute and hour hands of a clock are perpendicular to each other twice between 5 pm and 6 pm. Compute the elapsed amount of time, in minutes and seconds, between these two times, correct to the nearest second.

Answer : _____

Round 1 2 3 4 5

#7 Trigonometry - Hustle MA⊕ National Convention 2011

The minute and hour hands of a clock are perpendicular to each other twice between 5 pm and 6 pm. Compute the elapsed amount of time, in minutes and seconds, between these two times, correct to the nearest second.

Answer : _____

Round 1 2 3 4 5

Answer : _____

#8 Trigonometry - Hustle MA⊕ National Convention 2011

In $\triangle ABC$, where A and B are acute angles, $3\sin A + 4\cos B = 6$ and $4\sin B + 3\cos A = 1$. Find the measure of $\angle C$, in radians.

#8 Trigonometry - Hustle MA® National Convention 2011

In $\triangle ABC$, where A and B are acute angles, $3\sin A + 4\cos B = 6$ and $4\sin B + 3\cos A = 1$. Find the measure of $\angle C$, in radians.

_		
Answer		
7112 W C1	•	

Round 1 2 3 4 5

#8 Trigonometry - Hustle MA® National Convention 2011

In $\triangle ABC$, where A and B are acute angles, $3\sin A + 4\cos B = 6$ and $4\sin B + 3\cos A = 1$. Find the measure of $\angle C$, in radians.

Answer : _____

Round 1 2 3 4 5

#8 Trigonometry - Hustle MA® National Convention 2011

In $\triangle ABC$, where A and B are acute angles, $3\sin A + 4\cos B = 6$ and $4\sin B + 3\cos A = 1$. Find the measure of $\angle C$, in radians.

Answer : _____

Answer : _____

Round 1 2 3 4 5

#9 Trigonometry - Hustle MA⊕ National Convention 2011

The depth d of water, in feet, at a point near the shore varies due to the tides. A particular equation relating d to time t, in hours after midnight on a given day, is

$$d = 3 + 2\cos\left(\frac{\pi}{5.4}(t-4)\right)$$
. Find the first positive

time *t* at which the water is exactly 4 feet deep.

#9 Trigonometry - Hustle MA⊕ National Convention 2011

The depth d of water, in feet, at a point near the shore varies due to the tides. A particular equation relating d to time t, in hours after midnight on a given day, is

$$d = 3 + 2\cos\left(\frac{\pi}{5.4}(t-4)\right)$$
. Find the first positive

time *t* at which the water is exactly 4 feet deep.

Answer:	

Round 1 2 3 4 5

#9 Trigonometry - Hustle MA⊕ National Convention 2011

The depth d of water, in feet, at a point near the shore varies due to the tides. A particular equation relating d to time t, in hours after midnight on a given day, is

$$d = 3 + 2\cos\left(\frac{\pi}{5.4}(t-4)\right)$$
. Find the first positive

time *t* at which the water is exactly 4 feet deep.

Answer : _____

Round 1 2 3 4 5

#9 Trigonometry - Hustle MA⊕ National Convention 2011

The depth d of water, in feet, at a point near the shore varies due to the tides. A particular equation relating d to time t, in hours after midnight on a given day, is

$$d = 3 + 2\cos\left(\frac{\pi}{5.4}(t-4)\right)$$
. Find the first positive

time *t* at which the water is exactly 4 feet deep.

Answer : _____

Round 1 2 3 4 5

Round 1 2 3 4 5

Answer : __

#10 Trigonometry - Hustle	
MA⊕ National Convention 2011	

Find the smallest positive radian solution to the equation $5\cos x - 2\cos^2 x = 2$.

#10 Trigonometry - Hustle MA® National Convention 2011

Find the smallest positive radian solution to the equation $5\cos x - 2\cos^2 x = 2$.

Answer : _____

Round 1 2 3 4 5

#10 Trigonometry - Hustle MA® National Convention 2011

Find the smallest positive radian solution to the equation $5\cos x - 2\cos^2 x = 2$.

Answer : _____

Round 1 2 3 4 5

#10 Trigonometry - Hustle MA® National Convention 2011

Find the smallest positive radian solution to the equation $5\cos x - 2\cos^2 x = 2$.

Answer : _____

Answer : _____

Round 1 2 3 4 5

#11 Trigonometry - Hustle	
MAO National Convention 201	1

If tan(x+y)=33 and tan x=3, find the value of tan y.

#11 Trigonometry - Hustle MA⊕ National Convention 2011

If tan(x+y)=33 and tan x=3, find the value of tan y.

Answer : _____

Round 1 2 3 4 5

#11 Trigonometry - Hustle MA⊕ National Convention 2011

If tan(x+y)=33 and tan x=3, find the value of tan y.

Answer : _____

Round 1 2 3 4 5

#11 Trigonometry - Hustle MA® National Convention 2011

If tan(x+y)=33 and tan x=3, find the value of tan y.

Answer : _____

Round 1 2 3 4 5

Answer : _____

#12 Trigonometry - Hustle MA⊕ National Convention 2011

Evaluate:
$$\frac{\cos 87^{\circ}}{\sin 1^{\circ}} - \frac{\sin 87^{\circ}}{\cos 1^{\circ}}$$

#12 Trigonometry - Hustle MA⊕ National Convention 2011

Evaluate:
$$\frac{\cos 87^{\circ}}{\sin 1^{\circ}} - \frac{\sin 87^{\circ}}{\cos 1^{\circ}}$$

Answer:	

Round 1 2 3 4 5

#12 Trigonometry - Hustle MA⊕ National Convention 2011

Evaluate: $\frac{\cos 87^{\circ}}{\sin 1^{\circ}} - \frac{\sin 87^{\circ}}{\cos 1^{\circ}}$

Answer : _____

Round 1 2 3 4 5

#12 Trigonometry - Hustle MA⊕ National Convention 2011

Evaluate: $\frac{\cos 87^{\circ}}{\sin 1^{\circ}} - \frac{\sin 87^{\circ}}{\cos 1^{\circ}}$

Answer : _____

Answer : _____

Round 1 2 3 4 5

#13 Trigonometry - Hustle MA® National Convention 2011	#13 Trigonometry - Hustle MA⊕ National Convention 2011
Evaluate: $\prod_{i=1}^{89} \tan i^{\circ}$	Evaluate: $\prod_{i=1}^{89} \tan i^{\circ}$
Anguari	Angwort
Answer: Round 1 2 3 4 5	Answer: Round 1 2 3 4 5

#13 Trigonometry - Hustle MA® National Convention 2011

Evaluate: $\prod_{i=1}^{89} \tan i^{\circ}$

Answer: ___

Round 1 2 3 4 5

#13 Trigonometry - Hustle MA® National Convention 2011

Evaluate: $\prod_{i=1}^{89} \tan i^{\circ}$

Answer: ____

#14 Trigonometry – Hustle MA® National Convention 2011

If the sum of the radian solutions to the equation $\sin^2 x - \sin x = \cos^2 x$ on the interval $\left[0,2\pi\right]$ is expressed as $\frac{a\pi}{b}$, where a and b are relatively prime positive integers, find the product ab.

#14 Trigonometry - Hustle MA® National Convention 2011

If the sum of the radian solutions to the equation $\sin^2 x - \sin x = \cos^2 x$ on the interval $\left[0,2\pi\right]$ is expressed as $\frac{a\pi}{b}$, where a and b are relatively prime positive integers, find the product ab.

Answer	:	

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#14 Trigonometry - Hustle MA⊕ National Convention 2011

If the sum of the radian solutions to the equation $\sin^2 x - \sin x = \cos^2 x$ on the interval $\left[0,2\pi\right]$ is expressed as $\frac{a\pi}{b}$, where a and b are relatively prime positive integers, find the product ab.

#14 Trigonometry - Hustle MA⊕ National Convention 2011

If the sum of the radian solutions to the equation $\sin^2 x - \sin x = \cos^2 x$ on the interval $\left[0,2\pi\right]$ is expressed as $\frac{a\pi}{b}$, where a and b are relatively prime positive integers, find the product ab.

Answer : _____

Answer : _____

Round 1 2 3 4 5

#15 Trigonometry - Hustle MA⊕ National Convention 2011

Evaluate: $\cos\left(\frac{4\pi}{3} - \cos^{-1}\left(-\frac{1}{2}\right)\right)$

#15 Trigonometry - Hustle MA⊕ National Convention 2011

Evaluate: $\cos\left(\frac{4\pi}{3} - \cos^{-1}\left(-\frac{1}{2}\right)\right)$

Answer : _____

Round 1 2 3 4 5

#15 Trigonometry - Hustle MA⊕ National Convention 2011

Evaluate: $\cos\left(\frac{4\pi}{3} - \cos^{-1}\left(-\frac{1}{2}\right)\right)$

Answer : _____

Round 1 2 3 4 5

#15 Trigonometry - Hustle MA⊕ National Convention 2011

Evaluate: $\cos\left(\frac{4\pi}{3} - \cos^{-1}\left(-\frac{1}{2}\right)\right)$

Answer : _____

Answer : _____

Round 1 2 3 4 5

#16 Trigonometry - Hustle MA⊕ National Convention 2011

If $f(x) = -5\sin\left(7x + \frac{\pi}{3}\right) + 4$, find the smallest positive value c such that f(c) has maximum value.

#16 Trigonometry - Hustle MA⊕ National Convention 2011

If $f(x) = -5\sin\left(7x + \frac{\pi}{3}\right) + 4$, find the smallest positive value c such that f(c) has maximum value.

Answer	:	
Answer	:	

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#16 Trigonometry - Hustle MA⊕ National Convention 2011

If $f(x) = -5\sin\left(7x + \frac{\pi}{3}\right) + 4$, find the smallest positive value c such that f(c) has maximum value.

#16 Trigonometry - Hustle MA© National Convention 2011

If $f(x) = -5\sin\left(7x + \frac{\pi}{3}\right) + 4$, find the smallest positive value c such that f(c) has maximum value.

Answer : _____

Answer : _____

Round 1 2 3 4 5

#17 Trigonometry – Hustle MA® National Convention 2011	#17 Trigonometry – Hustle MA⊕ National Convention 2011
Find the radian measure of the acute angle between the vectors $\langle 1,3 \rangle$ and $\langle -2,4 \rangle$.	Find the radian measure of the acute angle between the vectors $\langle 1,3 \rangle$ and $\langle -2,4 \rangle$.
Answer :	Answer :
Round 1 2 3 4 5	Round 1 2 3 4 5
#17 Trigonometry - Hustle	#17 Trigonometry – Hustle
MAR National Convention 2011	MAN National Convention 2011

Find the radian measure of the acute angle between the vectors $\left<1\text{,3}\right>$ and $\left<-2\text{,4}\right>.$

Find the radian measure of the acute angle between the vectors $\left<1,3\right>$ and $\left<-2,4\right>$.

Answer: __ Answer : _____

Round 1 2 3 4 5

#18 Trigonometry - Hustle MA⊕ National Convention 2011

Suppose
$$\frac{\sin\frac{\pi}{10}}{z} = \frac{\sin\frac{\pi}{20}}{10}$$
. If $z = A\cos\left(\frac{\pi}{20}\right)$,

where A is a real number, find the value of A.

#18 Trigonometry - Hustle MA® National Convention 2011

Suppose
$$\frac{\sin\frac{\pi}{10}}{z} = \frac{\sin\frac{\pi}{20}}{10}$$
. If $z = A\cos\left(\frac{\pi}{20}\right)$,

where A is a real number, find the value of A.

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#18 Trigonometry - Hustle MA® National Convention 2011

Suppose
$$\frac{\sin\frac{\pi}{10}}{z} = \frac{\sin\frac{\pi}{20}}{10}$$
. If $z = A\cos\left(\frac{\pi}{20}\right)$,

where A is a real number, find the value of A.

#18 Trigonometry - Hustle MA® National Convention 2011

Suppose
$$\frac{\sin\frac{\pi}{10}}{z} = \frac{\sin\frac{\pi}{20}}{10}$$
. If $z = A\cos\left(\frac{\pi}{20}\right)$,

where A is a real number, find the value of A.

Answer : _____

Answer : _____

Round 1 2 3 4 5

#19 Trigonometry - Hustle MA⊕ National Convention 2011

Evaluate: $\cot\left(-\frac{4\pi}{3}\right)$

#19 Trigonometry - Hustle MA⊕ National Convention 2011

Evaluate: $\cot\left(-\frac{4\pi}{3}\right)$

Answer : _____

Round 1 2 3 4 5

#19 Trigonometry - Hustle MA⊕ National Convention 2011

Evaluate: $\cot\left(-\frac{4\pi}{3}\right)$

Answer : _____

Round 1 2 3 4 5

#19 Trigonometry - Hustle MA⊕ National Convention 2011

Evaluate: $\cot\left(-\frac{4\pi}{3}\right)$

Answer : _____

Answer : _____

Round 1 2 3 4 5

#20 Trigonometry - Hustle MA⊕ National Convention 2011

If
$$\left(2\left(\cos\frac{5\pi}{6} + i\sin\frac{5\pi}{6}\right)\right)^4 = a + bi$$
, where a and

b are real numbers and $i = \sqrt{-1}$, find a + b.

#20 Trigonometry - Hustle MA⊕ National Convention 2011

If
$$\left(2\left(\cos\frac{5\pi}{6} + i\sin\frac{5\pi}{6}\right)\right)^4 = a + bi$$
, where a and b are real numbers and $i = \sqrt{-1}$, find $a + b$.

Answer : _____

Round 1 2 3 4 5

#20 Trigonometry - Hustle MA⊕ National Convention 2011

If
$$\left(2\left(\cos\frac{5\pi}{6} + i\sin\frac{5\pi}{6}\right)\right)^4 = a + bi$$
, where a and

b are real numbers and $i = \sqrt{-1}$, find a + b.

Answer : _____

Round 1 2 3 4 5

#20 Trigonometry - Hustle MA® National Convention 2011

If
$$\left(2\left(\cos\frac{5\pi}{6} + i\sin\frac{5\pi}{6}\right)\right)^4 = a + bi$$
, where a and b are real numbers and $i = \sqrt{-1}$, find $a + b$.

Answer : _____

Round 1 2 3 4 5

Answer : _____

#21 Trigonometry - Hustle MA⊕ National Convention 2011

A point (x,y) lies in the first quadrant on the circle with equation $x^2 + y^2 = 1$. A ray from the origin through (x,y) makes an acute angle θ with the positive x-axis. Find the value of $\tan \theta$ if $\theta = \cos^{-1} \left(\frac{4x + 3y}{5} \right)$.

#21 Trigonometry - Hustle MA© National Convention 2011

A point (x,y) lies in the first quadrant on the circle with equation $x^2 + y^2 = 1$. A ray from the origin through (x,y) makes an acute angle θ with the positive x-axis. Find the value of $\tan \theta$ if $\theta = \cos^{-1} \left(\frac{4x + 3y}{5} \right)$.

Answer : _____

Round 1 2 3 4 5

Answer : _____

Round 1 2 3 4 5

#21 Trigonometry - Hustle MA® National Convention 2011

A point (x,y) lies in the first quadrant on the circle with equation $x^2 + y^2 = 1$. A ray from the origin through (x,y) makes an acute angle θ with the positive x-axis. Find the value of $\tan \theta$ if $\theta = \cos^{-1} \left(\frac{4x + 3y}{5} \right)$.

#21 Trigonometry - Hustle MA⊕ National Convention 2011

A point (x,y) lies in the first quadrant on the circle with equation $x^2 + y^2 = 1$. A ray from the origin through (x,y) makes an acute angle θ with the positive x-axis. Find the value of $\tan \theta$ if $\theta = \cos^{-1} \left(\frac{4x + 3y}{5} \right)$.

Answer : _____

Round 1 2 3 4 5

Answer : _____

#22 Trigonometry - Hustle	
MAO National Convention 2011	ĺ

In $\triangle ABC$, $\angle A = 30^{\circ}$ and b = 10. Find the value of $a \sin B$.

#22 Trigonometry - Hustle MA⊕ National Convention 2011

In $\triangle ABC$, $\angle A = 30^{\circ}$ and b = 10. Find the value of $a \sin B$.

Answer : _____

Round 1 2 3 4 5

#22 Trigonometry - Hustle MA⊕ National Convention 2011

In $\triangle ABC$, $\angle A = 30^{\circ}$ and b = 10. Find the value of $a\sin B$.

Answer : _____

Round 1 2 3 4 5

#22 Trigonometry - Hustle MA⊕ National Convention 2011

In $\triangle ABC$, $\angle A = 30^{\circ}$ and b = 10. Find the value of $a\sin B$.

Answer : _____

Answer : _____

Round 1 2 3 4 5

# 23	Trigonometry - Hustle
MAO	National Convention 2011

What is the maximum value of r in the equation $r = 7 - 6\cos(7\theta)$?

#23 Trigonometry - Hustle MA© National Convention 2011

What is the maximum value of r in the equation $r = 7 - 6\cos(7\theta)$?

Answer :		

Round 1 2 3 4 5

#23 Trigonometry - Hustle MA⊕ National Convention 2011

What is the maximum value of r in the equation $r = 7 - 6\cos(7\theta)$?

Answer : _____

Round 1 2 3 4 5

#23 Trigonometry - Hustle MA⊕ National Convention 2011

What is the maximum value of r in the equation $r = 7 - 6\cos(7\theta)$?

Answer : _____

Answer : _____

Round 1 2 3 4 5

#24 Trigonometry - Hustle MA⊕ National Convention 2011

The point (4,1) is rotated by an angle of $\frac{\pi}{6}$ about the origin, resulting in the new point (x,y). Find the value of 8x + 2y.

#24 Trigonometry - Hustle MA⊕ National Convention 2011

The point (4,1) is rotated by an angle of $\frac{\pi}{6}$ about the origin, resulting in the new point (x,y). Find the value of 8x + 2y.

Answer : _____

Round 1 2 3 4 5

#24 Trigonometry - Hustle MA® National Convention 2011

The point (4,1) is rotated by an angle of $\frac{\pi}{6}$ about the origin, resulting in the new point (x,y). Find the value of 8x + 2y.

Answer : _____

Round 1 2 3 4 5

#24 Trigonometry - Hustle MA⊕ National Convention 2011

The point (4,1) is rotated by an angle of $\frac{\pi}{6}$ about the origin, resulting in the new point (x,y). Find the value of 8x + 2y.

Answer : _____

Round 1 2 3 4 5

Answer : _____

#25 Trigonometry - Hustle MA⊕ National Convention 2011

Which of the following is false?

A)
$$\sin^2(90^\circ - x) + \sin^2 x = 1$$

B)
$$\left(\frac{1}{\sin^2 x}\right) - \left(\frac{1}{\tan x}\right)^2 = 1$$

C)
$$\cos^2(-x) + \sin^2(-x) = 1$$

D)
$$(\cos^2 x)(\tan^2 x - 1) = 1$$

Answer : ______

Round 1 2 3 4 5

#25 Trigonometry - Hustle MA® National Convention 2011

Which of the following is false?

A)
$$\sin^2(90^\circ - x) + \sin^2 x = 1$$

B)
$$\left(\frac{1}{\sin^2 x}\right) - \left(\frac{1}{\tan x}\right)^2 = 1$$

C)
$$\cos^2(-x) + \sin^2(-x) = 1$$

D)
$$(\cos^2 x)(\tan^2 x - 1) = 1$$

#25 Trigonometry - Hustle MA⊕ National Convention 2011

Which of the following is false?

A)
$$\sin^2(90^\circ - x) + \sin^2 x = 1$$

B)
$$\left(\frac{1}{\sin^2 x}\right) - \left(\frac{1}{\tan x}\right)^2 = 1$$

C)
$$\cos^2(-x) + \sin^2(-x) = 1$$

D)
$$(\cos^2 x)(\tan^2 x - 1) = 1$$

Answer : _____

Round 1 2 3 4 5

#25 Trigonometry - Hustle MA® National Convention 2011

Which of the following is false?

A)
$$\sin^2(90^\circ - x) + \sin^2 x = 1$$

B)
$$\left(\frac{1}{\sin^2 x}\right) - \left(\frac{1}{\tan x}\right)^2 = 1$$

C)
$$\cos^2(-x) + \sin^2(-x) = 1$$

D)
$$(\cos^2 x)(\tan^2 x - 1) = 1$$

Answer : _____

Answer : _____

Round 1 2 3 4 5