

#1 Geometry – Hustle
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Each side of a rhombus has length 10. What is the sum of the squares of the lengths of the diagonals of this rhombus?

Answer : _____

Round 1 2 3 4 5

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Round 1 2 3 4 5

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Answer : _____

Round 1 2 3 4 5

#2 Geometry – Hustle
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What is the area of the annulus formed by two concentric circles, one with radius of length 5, the other with radius of length 13?

Answer : _____

Round 1 2 3 4 5

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Round 1 2 3 4 5

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Answer : _____

Round 1 2 3 4 5

#3 Geometry – Hustle
MA[©] National Convention 2015

What is the volume of the figure formed when a square of side length 4, centered at the origin, is revolved about the y -axis?

Answer : _____

Round 1 2 3 4 5

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Round 1 2 3 4 5

#4 Geometry – Hustle
MA[©] National Convention 2015

You have a set with an infinite amount of circles. The first circle has radius 4, and the radius of each circle is half the size of the radius of the circle preceding it. What is the total area enclosed by all of your circles?

Answer : _____

Round 1 2 3 4 5

#4 Geometry – Hustle
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You have a set with an infinite amount of circles. The first circle has radius 4, and the radius of each circle is half the size of the radius of the circle preceding it. What is the total area enclosed by all of your circles?

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Round 1 2 3 4 5

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Answer : _____

Round 1 2 3 4 5

#5 Geometry – Hustle
MA[©] National Convention 2015

What is the area enclosed by a circle circumscribed about a right triangle with legs of length 3 and 4?

Answer : _____

Round 1 2 3 4 5

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Round 1 2 3 4 5

#6 Geometry – Hustle
MA[©] National Convention 2015

What is the equation, in slope-intercept form,
of the line passing through the points (3,0)
and (0,6)?

Answer : _____

Round 1 2 3 4 5

#6 Geometry – Hustle
MA[©] National Convention 2015

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Round 1 2 3 4 5

#7 Geometry – Hustle
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What is the volume of a hexagonal prism with height of 5 and base side length of 2?

Answer : _____

Round 1 2 3 4 5

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Round 1 2 3 4 5

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Answer : _____

Round 1 2 3 4 5

#8 Geometry – Hustle
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What is the geometric mean of 5, 15, and 20?

Answer : _____

Round 1 2 3 4 5

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What is the geometric mean of 5, 15, and 20?

Answer : _____

Round 1 2 3 4 5

#9 Geometry – Hustle
MA@ National Convention 2015

What is the degree measure of the acute angle between the hands of a clock at 2:20?

Answer : _____

Round 1 2 3 4 5

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Answer : _____

Round 1 2 3 4 5

#10 Geometry – Hustle
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A circle has radius of length 5. What is the area enclosed by the regular hexagon inscribed in this circle?

Answer : _____

Round 1 2 3 4 5

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Answer : _____

Round 1 2 3 4 5

#11 Geometry - Hustle
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What is the standard form equation of a circle with radius of length 5, centered at the origin?

Answer : _____

Round 1 2 3 4 5

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Round 1 2 3 4 5

#12 Geometry – Hustle
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A circle with center at the point $(4,5)$ and radius of length 2 is revolved about the x -axis. What is the volume of the figure formed by this revolution?

Answer : _____

Round 1 2 3 4 5

#12 Geometry – Hustle
MA[©] National Convention 2015

A circle with center at the point $(4,5)$ and radius of length 2 is revolved about the x -axis. What is the volume of the figure formed by this revolution?

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Round 1 2 3 4 5

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#12 Geometry – Hustle
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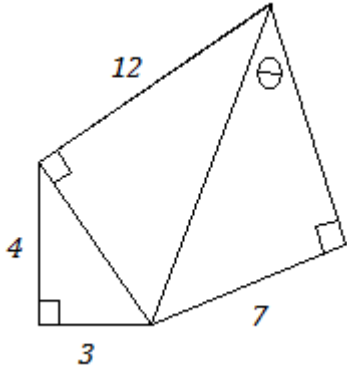
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#13 Geometry - Hustle
MA \odot National Convention 2015

What is the numerical value of $\sin \theta$?

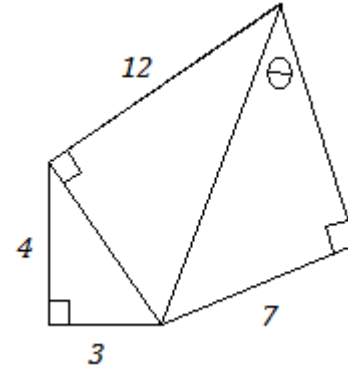


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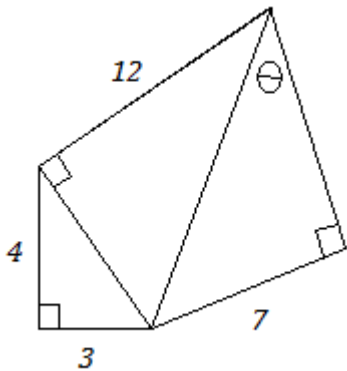


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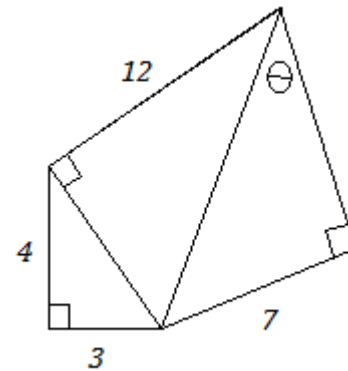


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Round 1 2 3 4 5

#13 Geometry - Hustle
MA \odot National Convention 2015

What is the numerical value of $\sin \theta$?



Answer : _____

Round 1 2 3 4 5

#14 Geometry – Hustle
MA[©] National Convention 2015

A goat is attached by a 15-foot rope to the corner of a building with a rectangular base with sides of lengths 10 feet and 20 feet. How much area on the ground does the goat have in which to graze?

Answer : _____

Round 1 2 3 4 5

#14 Geometry – Hustle
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A goat is attached by a 15-foot rope to the corner of a building with a rectangular base with sides of lengths 10 feet and 20 feet. How much area on the ground does the goat have in which to graze?

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Round 1 2 3 4 5

#15 Geometry - Hustle
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If you are traveling at 2 miles per hour, and your friend is traveling at 1 mile per hour, starting one half of a mile in front of you, how long, in minutes, will it take you to catch up if you and your friend are traveling in the same direction in a straight line?

Answer : _____

Round 1 2 3 4 5

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MA[©] National Convention 2015

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Round 1 2 3 4 5

#16 Geometry – Hustle
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From a rectangular piece of cardboard measuring 8 inches by 10 inches, you cut square with sides of length 2 inches from each corner. If the remaining cardboard is folded into a box in the shape of a rectangular prism, what is the volume of this box, in cubic inches?

Answer : _____

Round 1 2 3 4 5

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Round 1 2 3 4 5

#17 Geometry – Hustle
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A is directly proportional to C divided by B. If A is 10 when B is 2 and C is 0.5, what is the numerical value of A when B is 1 and C is 4?

Answer : _____

Round 1 2 3 4 5

#17 Geometry – Hustle
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Answer : _____

Round 1 2 3 4 5

#18 Geometry – Hustle
MA@ National Convention 2015

What is the volume of a square pyramid with base of side length 8 and the height of one of its lateral faces also 8?

Answer : _____

Round 1 2 3 4 5

#18 Geometry – Hustle
MA@ National Convention 2015

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Answer : _____

Round 1 2 3 4 5

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MA@ National Convention 2015

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Answer : _____

Round 1 2 3 4 5

#18 Geometry – Hustle
MA@ National Convention 2015

What is the volume of a square pyramid with base of side length 8 and the height of one of its lateral faces also 8?

Answer : _____

Round 1 2 3 4 5

#19 Geometry – Hustle
MA[©] National Convention 2015

In a triangle, the measures of the angles are 45° , 60° , and 75° . The side opposite the 45° angle has length 8. The side opposite the 60° angle has length 10. What is the length of the side opposite the 75° angle?

Answer : _____

Round 1 2 3 4 5

#19 Geometry – Hustle
MA[©] National Convention 2015

In a triangle, the measures of the angles are 45° , 60° , and 75° . The side opposite the 45° angle has length 8. The side opposite the 60° angle has length 10. What is the length of the side opposite the 75° angle?

Answer : _____

Round 1 2 3 4 5

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MA[©] National Convention 2015

In a triangle, the measures of the angles are 45° , 60° , and 75° . The side opposite the 45° angle has length 8. The side opposite the 60° angle has length 10. What is the length of the side opposite the 75° angle?

Answer : _____

Round 1 2 3 4 5

#19 Geometry – Hustle
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In a triangle, the measures of the angles are 45° , 60° , and 75° . The side opposite the 45° angle has length 8. The side opposite the 60° angle has length 10. What is the length of the side opposite the 75° angle?

Answer : _____

Round 1 2 3 4 5

#20 Geometry – Hustle
MA[©] National Convention 2015

What is the maximum number of cubes of side length 2 that will fit into a rectangular prism box with dimensions $10 \times 12 \times 6$?

Answer : _____

Round 1 2 3 4 5

#20 Geometry – Hustle
MA[©] National Convention 2015

What is the maximum number of cubes of side length 2 that will fit into a rectangular prism box with dimensions $10 \times 12 \times 6$?

Answer : _____

Round 1 2 3 4 5

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Round 1 2 3 4 5

#21 Geometry – Hustle
MA[©] National Convention 2015

If you pour water into a tank at a rate of 4 liters per minute, while at the same time water is leaking out of the tank at a rate of 0.5 liters per minute, how many minutes will it take to fill the tank if its capacity is 28 gallons? The tank is initially empty.

Answer : _____

Round 1 2 3 4 5

#21 Geometry – Hustle
MA[©] National Convention 2015

If you pour water into a tank at a rate of 4 liters per minute, while at the same time water is leaking out of the tank at a rate of 0.5 liters per minute, how many minutes will it take to fill the tank if its capacity is 28 gallons? The tank is initially empty.

Answer : _____

Round 1 2 3 4 5

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Round 1 2 3 4 5

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Answer : _____

Round 1 2 3 4 5

#22 Geometry – Hustle
MA[©] National Convention 2015

What is the ratio, written as a simplest terms fraction, of the length of the radius of a circle to the length of the diagonal of a square circumscribed about the circle?

Answer : _____

Round 1 2 3 4 5

#22 Geometry – Hustle
MA[©] National Convention 2015

What is the ratio, written as a simplest terms fraction, of the length of the radius of a circle to the length of the diagonal of a square circumscribed about the circle?

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Round 1 2 3 4 5

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Answer : _____

Round 1 2 3 4 5

#23 Geometry - Hustle
MA@ National Convention 2015

Find the numerical value of the sum of the
geometric series $1 - \frac{1}{3} + \frac{1}{9} - \frac{1}{27} + \dots$

Answer : _____

Round 1 2 3 4 5

#23 Geometry - Hustle
MA@ National Convention 2015

Find the numerical value of the sum of the
geometric series $1 - \frac{1}{3} + \frac{1}{9} - \frac{1}{27} + \dots$

Answer : _____

Round 1 2 3 4 5

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Answer : _____

Round 1 2 3 4 5

#24 Geometry - Hustle
MA[©] National Convention 2015

An isosceles trapezoid has bases of lengths $x+1$ and $2x-1$, and the height of the trapezoid is $\frac{3}{x}$. Find the numerical area enclosed by the trapezoid.

Answer : _____

Round 1 2 3 4 5

#24 Geometry - Hustle
MA[©] National Convention 2015

An isosceles trapezoid has bases of lengths $x+1$ and $2x-1$, and the height of the trapezoid is $\frac{3}{x}$. Find the numerical area enclosed by the trapezoid.

Answer : _____

Round 1 2 3 4 5

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Round 1 2 3 4 5

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Answer : _____

Round 1 2 3 4 5

#25 Geometry - Hustle
MA[©] National Convention 2015

Paint costs \$10 per gallon, and each gallon of paint can cover 6 square meters of area. How much money, in dollars, will you spend on paint if you want to paint all the inside walls (not the floor or the ceiling) of a room that is 5 meters long by 4 meters wide by 2 meters high?

Answer : _____

Round 1 2 3 4 5

#25 Geometry - Hustle
MA[©] National Convention 2015

Paint costs \$10 per gallon, and each gallon of paint can cover 6 square meters of area. How much money, in dollars, will you spend on paint if you want to paint all the inside walls (not the floor or the ceiling) of a room that is 5 meters long by 4 meters wide by 2 meters high?

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Round 1 2 3 4 5

