#1 Geometry – Hustle
MAΘ National Convention 2025

A circle has a diameter of 50 cm. How far from the center of the circle is a chord measuring 14 cm?

Answer : _____

Round 1 2 3 4 5

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A circle has a diameter of 50 cm. How far from the center of the circle is a chord measuring 14 cm?

Answer : _____

Round 1 2 3 4 5

#2 Geometry – Hustle
MAΘ National Convention 2025

A circle has an area of 49π. What is the perimeter of a square inscribed in the circle?

Answer : _____

Round 1 2 3 4 5

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Round 1 2 3 4 5

#3 Geometry – Hustle
MAΘ National Convention 2025

In circle O, $m\angle ABD = 53°$ and chords $\overline{AB}$ and $\overline{AD}$ are congruent. What is the degree measure of minor arc $\widehat{BD}$?

Answer : _____

Round 1 2 3 4 5

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MAΘ National Convention 2025

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MAΘ National Convention 2025

In circle O, $m\angle ABD = 53°$ and chords $\overline{AB}$ and $\overline{AD}$ are congruent. What is the degree measure of minor arc $\widehat{BD}$?

Answer : _____

Round 1 2 3 4 5

#4 Geometry – Hustle
MAΘ National Convention 2025

In ΔRST, $m\angle S = 120°$, $r = 10$ and $t = 12$. Find s.

Answer : _____

Round 1 2 3 4 5

#4 Geometry – Hustle
MAΘ National Convention 2025

In ΔRST, $m\angle S = 120°$, $r = 10$ and $t = 12$. Find s.

Answer : _____

Round 1 2 3 4 5

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MAΘ National Convention 2025

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Answer : _____

Round 1 2 3 4 5

#4 Geometry – Hustle
MAΘ National Convention 2025

In ΔRST, $m\angle S = 120°$, $r = 10$ and $t = 12$. Find s.

Answer : _____

Round 1 2 3 4 5

#5 Geometry – Hustle
MAΘ National Convention 2025

A square is inscribed in a circle. A point inside the circle is chosen at random. What is the probability that the chosen point is inside the circle but outside the square?

Answer : _____

Round 1 2 3 4 5

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MAΘ National Convention 2025

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MAΘ National Convention 2025

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Answer : _____

Round 1 2 3 4 5

#6 Geometry – Hustle
MAΘ National Convention 2025

What is the measure of an interior angle of a regular polygon with 15 sides (in degrees)?

Answer : _____

Round 1 2 3 4 5

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MAΘ National Convention 2025

What is the measure of an interior angle of a regular polygon with 15 sides (in degrees)?

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Round 1 2 3 4 5

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Round 1 2 3 4 5

#7 Geometry – Hustle
MAΘ National Convention 2025

If the lines $3x + 4y = 10$ and $5x - ky = 6$ form adjacent sides of a rectangle, then what is the value of *k ?*

Answer : _____

Round 1 2 3 4 5

#7 Geometry – Hustle
MAΘ National Convention 2025

If the lines $3x + 4y = 10$ and $5x - ky = 6$ form adjacent sides of a rectangle, then what is the value of *k ?*

Answer : _____

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Answer : _____

Round 1 2 3 4 5

#8 Geometry – Hustle
MAΘ National Convention 2025

Find the distance between the lines $y = \frac{3}{4}x - 4$ and $y = \frac{3}{4}x + 1$.

Answer : _____

Round 1 2 3 4 5

#8 Geometry – Hustle
MAΘ National Convention 2025

Find the distance between the lines $y = \frac{3}{4}x - 4$ and $y = \frac{3}{4}x + 1$.

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Round 1 2 3 4 5

#9 Geometry – Hustle
MAΘ National Convention 2025

Ahbi took a random walk through the streets of Orlando. If he started at the convention hotel and walked 5 miles west, 3 miles north, 4 miles east, 5 miles north, 6 miles east, and 3 miles south, how far was he from the hotel, as the crow flies?

Answer : _____

Round 1 2 3 4 5

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MAΘ National Convention 2025

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Answer : _____

Round 1 2 3 4 5

#10 Geometry – Hustle
MAΘ National Convention 2025

What is the volume of a sphere circumscribed about a cube whose edge is 4?

Answer : _____

Round 1 2 3 4 5

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What is the volume of a sphere circumscribed about a cube whose edge is 4?

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Round 1 2 3 4 5

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What is the volume of a sphere circumscribed about a cube whose edge is 4?

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Round 1 2 3 4 5

#11 Geometry – Hustle
MAΘ National Convention 2025

In convex quadrilateral ABCD, $\angle A = 58°, \angle C = 68°, \angle ADB = 57°, \text{ and } \angle CDB = 60°$. Which segment in the figure is the longest?

Answer : _____

Round 1 2 3 4 5

#11 Geometry – Hustle
MAΘ National Convention 2025

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Round 1 2 3 4 5

#12 Geometry – Hustle
MAΘ National Convention 2025

What is the sum of the number of faces of a dodecahedron, the number of edges of a hexagonal pyramid, and the number of vertices of a cube?

Answer : ______________

Round 1 2 3 4 5

#12 Geometry – Hustle
MAΘ National Convention 2025

What is the sum of the number of faces of a dodecahedron, the number of edges of a hexagonal pyramid, and the number of vertices of a cube?

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Answer : ______________

Round 1 2 3 4 5

#13 Geometry – Hustle
MAΘ National Convention 2025

Find the sum of the altitudes of a triangle whose sides are 7, 24, and 25.

Answer : _____

Round 1 2 3 4 5

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Round 1 2 3 4 5

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Round 1 2 3 4 5

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Round 1 2 3 4 5

#14 Geometry – Hustle
MAΘ National Convention 2025

M (-2, 5), A (3, 1) and T (-1, -3) form the vertices of a triangle. What is the area of the triangle?

Answer : _____

Round 1 2 3 4 5

#14 Geometry – Hustle
MAΘ National Convention 2025

M (-2, 5), A (3, 1) and T (-1, -3) form the vertices of a triangle. What is the area of the triangle?

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Round 1 2 3 4 5

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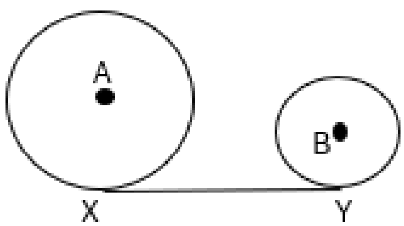
Round 1 2 3 4 5

#15 Geometry – Hustle
MAΘ National Convention 2025

The radii of circles A and B are 10 cm and 5 cm, respectively. $\overline{XY}$ is a 20 cm long common external tangent. Find the exact value of AB.



Answer : ______________

Round 1 2 3 4 5

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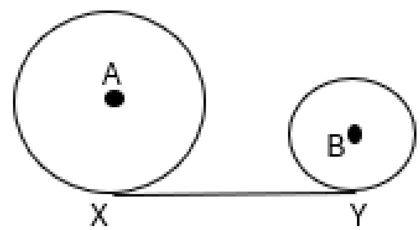

Answer : ______________

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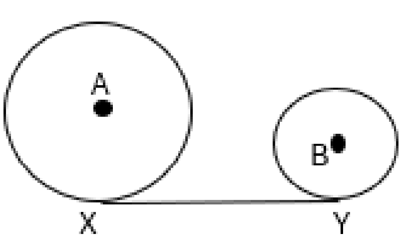

Answer : ______________

Round 1 2 3 4 5

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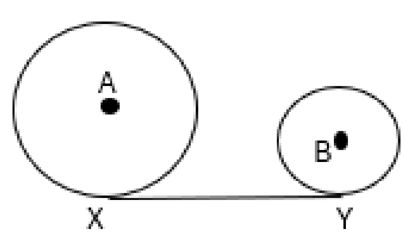

Answer : ______________

Round 1 2 3 4 5

#16 Geometry – Hustle
MAΘ National Convention 2025

A frustum of a cone is 5 units high. It has an upper base with a radius of 6 and a lower base with a circumference of 20π. What is the volume of the small cone that was cut off to form the frustum?

Answer : _____

Round 1 2 3 4 5

#16 Geometry – Hustle
MAΘ National Convention 2025

A frustum of a cone is 5 units high. It has an upper base with a radius of 6 and a lower base with a circumference of 20π. What is the volume of the small cone that was cut off to form the frustum?

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Answer : _____

Round 1 2 3 4 5

#17 Geometry – Hustle
MAΘ National Convention 2025

In the Cartesian plane, point *A* lies on the graph of $(x-2)^2 + (y+5)^2 = 20$. Point *B* lies on the graph of $(x-7)^2 + (y-5)^2 = 9$. Find the shortest possible distance between *A* and *B*.

Answer : _____

Round 1 2 3 4 5

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In the Cartesian plane, point *A* lies on the graph of $(x-2)^2 + (y+5)^2 = 20$. Point *B* lies on the graph of $(x-7)^2 + (y-5)^2 = 9$. Find the shortest possible distance between *A* and *B*.

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Answer : _____

Round 1 2 3 4 5

#18 Geometry – Hustle
MAΘ National Convention 2025

If the radius of a circle is increased by 200%, by what percent is the area increased?

Answer : _____

Round 1 2 3 4 5

#18 Geometry – Hustle
MAΘ National Convention 2025

If the radius of a circle is increased by 200%, by what percent is the area increased?

Answer : _____

Round 1 2 3 4 5

#18 Geometry – Hustle
MAΘ National Convention 2025

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Answer : _____

Round 1 2 3 4 5

#18 Geometry – Hustle
MAΘ National Convention 2025

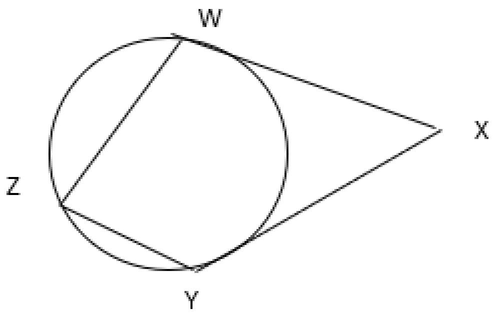
If the radius of a circle is increased by 200%, by what percent is the area increased?

Answer : _____

Round 1 2 3 4 5

#19 Geometry – Hustle
MAΘ National Convention 2025

Given: $\overline{WX}$ and $\overline{XY}$ are tangents
$m\angle Z = 50°$
Find $m\angle X$ in degrees.



Answer : _______________

Round 1 2 3 4 5

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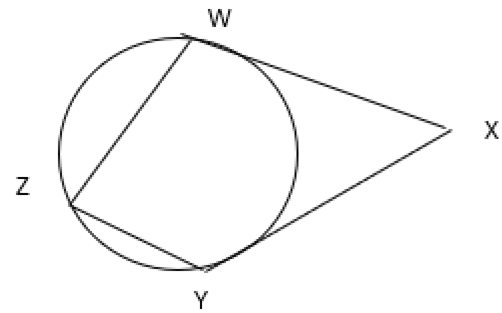

Answer : _______________

Round 1 2 3 4 5

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MAΘ National Convention 2025

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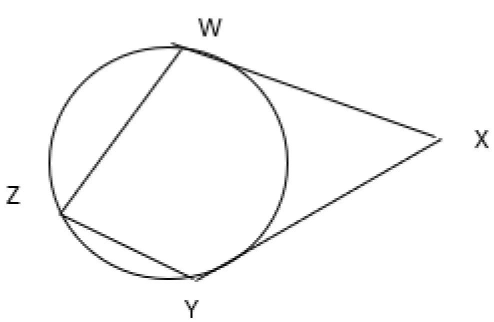
Find $m\angle X$ in degrees.



Answer : _______________

Round 1 2 3 4 5

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MAΘ National Convention 2025

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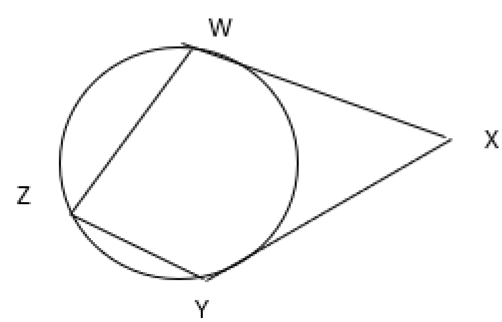

Answer : _______________

Round 1 2 3 4 5

#20 Geometry – Hustle
MAΘ National Convention 2025

Find the center of the circle that passes through the points (- 3, - 4), (2, - 7), and (8, 3).

Answer : ______________

Round 1 2 3 4 5

#20 Geometry – Hustle
MAΘ National Convention 2025

Find the center of the circle that passes through the points (- 3, - 4), (2, - 7), and (8, 3).

Answer : ______________

Round 1 2 3 4 5

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Answer : ______________

Round 1 2 3 4 5

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Answer : ______________

Round 1 2 3 4 5

#21 Geometry – Hustle
MAΘ National Convention 2025

A rectangle has adjacent sides measuring x and $2x - 3$ units. If the area of the rectangle is 65 square units, what is the perimeter of the rectangle?

Answer : _____

Round 1 2 3 4 5

#21 Geometry – Hustle
MAΘ National Convention 2025

A rectangle has adjacent sides measuring x and $2x - 3$ units. If the area of the rectangle is 65 square units, what is the perimeter of the rectangle?

Answer : _____

Round 1 2 3 4 5

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A rectangle has adjacent sides measuring x and $2x - 3$ units. If the area of the rectangle is 65 square units, what is the perimeter of the rectangle?

Answer : _____

Round 1 2 3 4 5

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MAΘ National Convention 2025

A rectangle has adjacent sides measuring x and $2x - 3$ units. If the area of the rectangle is 65 square units, what is the perimeter of the rectangle?

Answer : _____

Round 1 2 3 4 5

#22 Geometry – Hustle
MAΘ National Convention 2025

The diagonals of a rhombus are 16 cm and 28 cm. What is the area of the rhombus?

Answer : _____

Round 1 2 3 4 5

#22 Geometry – Hustle
MAΘ National Convention 2025

The diagonals of a rhombus are 16 cm and 28 cm. What is the area of the rhombus?

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Round 1 2 3 4 5

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Round 1 2 3 4 5

#23 Geometry – Hustle
MAΘ National Convention 2025

A (-4, 0), *B* (8, 0), and *C* (0, 10) form a triangle. If the altitude from *A* to $\overline{BC}$ is written in standard form, $Rx + Sy = T$ with $R > 0$, what is the value of $RS - T$?

Answer : _____

Round 1 2 3 4 5

#23 Geometry – Hustle
MAΘ National Convention 2025

A (-4, 0), *B* (8, 0), and *C* (0, 10) form a triangle. If the altitude from *A* to $\overline{BC}$ is written in standard form, $Rx + Sy = T$ with $R > 0$, what is the value of $RS - T$?

Answer : _____

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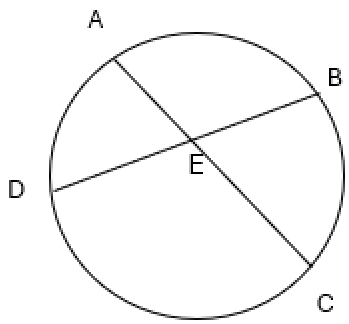
Answer : _____

Round 1 2 3 4 5

#24 Geometry – Hustle
MAΘ National Convention 2025

$AE = a + 4$, $CE = a + 2$, $BE = a + 1$, and $DE = a + 6$. What is the value of a?



Answer : ______________

Round 1 2 3 4 5

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MAΘ National Convention 2025

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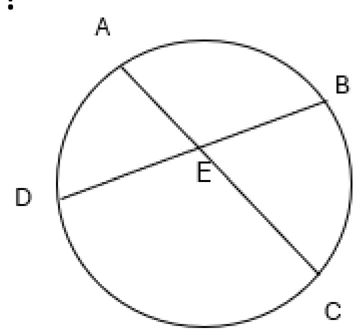

Answer : ______________

Round 1 2 3 4 5

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MAΘ National Convention 2025

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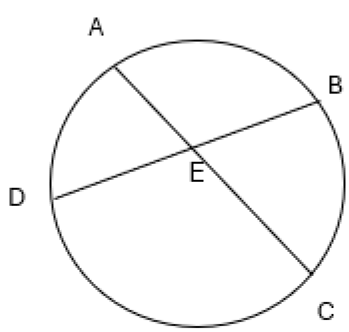

Answer : ______________

Round 1 2 3 4 5

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MAΘ National Convention 2025

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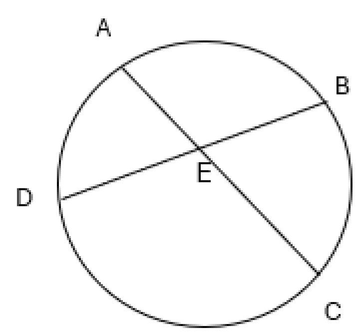

Answer : ______________

Round 1 2 3 4 5

#25 Geometry – Hustle
MAΘ National Convention 2025

A dartboard is formed by three concentric circles with radii 2, 4, and 6. The center circle is worth 20 points, the middle ring is worth 16 points, and the largest ring is worth 12 points. Assuming a randomly thrown dart hits the board, what is its expected value?

Answer : _____

Round 1 2 3 4 5

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MAΘ National Convention 2025

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Answer : _____

Round 1 2 3 4 5

#25 Geometry – Hustle
MAΘ National Convention 2025

A dartboard is formed by three concentric circles with radii 2, 4, and 6. The center circle is worth 20 points, the middle ring is worth 16 points, and the largest ring is worth 12 points. Assuming a randomly thrown dart hits the board, what is its expected value?

Answer : _____

Round 1 2 3 4 5

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