

**#1 Geometry – Hustle
FAMAT State Convention**

What is the maximum volume in cubic inches of a spherical object that can fit into a container in the shape of a cube with edge length of 6 in? Express the answer in terms of π .

School:

Answer:

**#2 Geometry – Hustle
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The length of a right rectangular prism is 6 in., and the width of the right rectangular prism is 8 in. The length of the diagonal of the right rectangular prism is 26 in. What is the height in inches of the right rectangular prism?

School:

Answer:

**#3 Geometry – Hustle
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The perimeter of a semicircle is $4\pi + 8$. What is the area of the semicircle? Express the answer in terms of π .

School:

Answer:

**#4 Geometry – Hustle
FAMAT State Convention**

What is the maximum number of distinct lines of symmetry that can be drawn in a regular polygon with 20 sides?

School:

Answer:

**#5 Geometry – Hustle
FAMAT State Convention**

A larger right triangle is similar to a smaller right triangle with side lengths 3 cm, 4 cm, and 5 cm. What is the area in square centimeters of the larger right triangle if the length of the hypotenuse of the larger right triangle is 20 cm?

School:

Answer:

**#6 Geometry – Hustle
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Carlos can paint a house in 12 hours. Juanita can paint the same house in 8 hours. If Carlos and Juanita paint the same house together at their same rates, in how many hours will it take both of them to paint the house?

School:

Answer:

**#7 Geometry – Hustle
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A triangle has vertices (8,-4), (2,4), and (-2,y). The area of the triangle is 25, and the value of y is a positive integer. What is the value of y?

School:

Answer:

**#8 Geometry – Hustle
FAMAT State Convention**

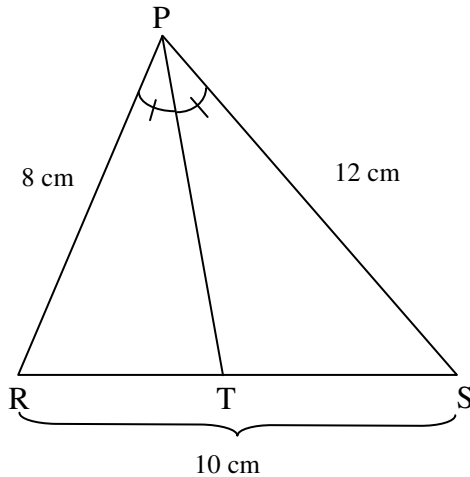
A clock with minute and hour hands reads 11:00. In how many minutes will the angle between the hour and minute hand first be 112.5° ?

School:

Answer:

**#9 Geometry – Hustle
FAMAT State Convention**

In $\triangle PRS$ below, \overline{PT} bisects $\angle RPS$. If $PR = 8$ cm, $PS = 12$ cm, and $RS = 10$ cm, by how many centimeters is the perimeter of $\triangle PST$ greater than the perimeter of $\triangle PRT$?



School:

Answer:

**#10 Geometry – Hustle
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A children's soccer league consists of 10 teams. Every season, each team plays the other team twice. How many matches are played in a season?

School:

Answer:

**#11 Geometry – Hustle
FAMAT State Convention**

What is the maximum number of non-overlapping regions that can be created by 10 intersecting lines?

School:

Answer:

**#12 Geometry – Hustle
FAMAT State Convention**

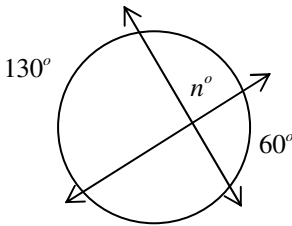
The surface area of a cube is 294 cm^2 . What is the volume in cubic centimeters of the cube?

School:

Answer:

**#13 Geometry – Hustle
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In the figure below, two secants intersect inside the circle forming four distinct non-overlapping arcs of the circle with two nonadjacent arcs measuring 130° and 60° . What is the measure of the angle marked n° ?



School:

Answer:

**#14 Geometry – Hustle
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Two squares have different side lengths. The area of the larger square is 28 square centimeters greater than the area of the smaller square. The perimeter of the larger square is 8 centimeters greater than the perimeter of the smaller square. What is the length in centimeters of the diagonal of the larger square?

School:

Answer:

**#15 Geometry – Hustle
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The measure of one exterior angle of a regular polygon is 45° . What is the sum of the interior angles of the polygon?

School:

Answer:

**#16 Geometry – Hustle
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For $A(-3,2)$ and $B(5,-4)$, the equation of the perpendicular bisector of \overline{AB} can be written in the form $y = mx + b$. What is the value of $m - b$?

School:

Answer:

#17 Geometry – Hustle
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What is the perimeter in centimeters of a rhombus if the lengths of the diagonals of the rhombus are 6 cm and 8 cm?

School:

Answer:

#18 Geometry – Hustle
FAMAT State Convention

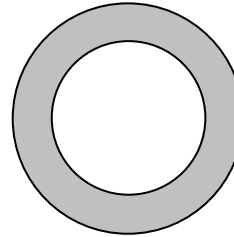
For $A(-4,3)$ and $B(2,-1)$, what is the y -coordinate of the trisection point of \overline{AB} that is closest to A ?

School:

Answer:

#19 Geometry – Hustle
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In the figure below, the shaded region forms an annulus. If two chords of the larger circle were drawn so that the two chords are tangent to the smaller circle, what is the maximum number of non-overlapping shaded regions that can be created by the chords?



School:

Answer:

#20 Geometry – Hustle
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For two similar cylinders, the height of one cylinder is 25% less than the height of the other cylinder. Of the two similar cylinders, the one with greater volume has a volume of 640. What is the volume of the cylinder that has the lesser volume?

School:

Answer:

#21 Geometry – Hustle
FAMAT State Convention

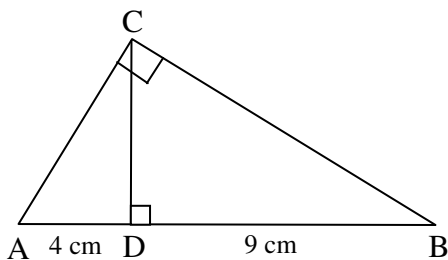
What is the sum of the number of faces of an icosahedron and a tetrahedron?

School:

Answer:

#22 Geometry – Hustle
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In the figure below, \overline{CD} is an altitude of $\triangle ABC$ with $m\angle C = 90^\circ$. If $AD = 4$ cm and $BD = 9$ cm, what is the area in square centimeters of $\triangle ABC$?



School:

Answer:

#23 Geometry – Hustle
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The supplement of an angle is four times the complement of the angle. What is the measure of the complement of the angle?

School:

Answer:

#24 Geometry – Hustle
FAMAT State Convention

What is the x-intercept of a line that has slope $\frac{2}{3}$ and passes through the point $(-6, -5)$?

School:

Answer:

#25 Geometry – Hustle
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A circle is inscribed in an equilateral triangle with area $16\sqrt{3}$. What is the area in terms of π of the circle?

School:

Answer: