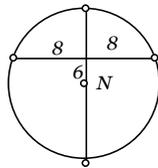


2009 Geometry Hustle

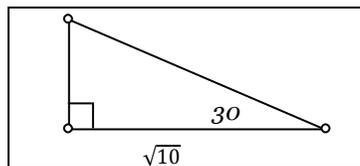
1. The three angles of a triangle are given by $(2x - 10)^\circ$, $4x^\circ$, and $(5x + 3)^\circ$. What is the measure of the largest angle of the triangle?

2. How many diagonals are there in a nonagon?

3. What is the radius of circle N?

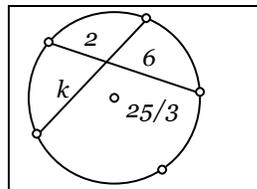


4. How long is the hypotenuse of the triangle?



5. What is the area of the circle whose diameter is 4π ?

6. What is the value of k ?



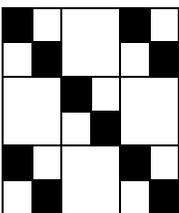
7. A circle is inscribed in a square with a perimeter of 24 meters and then a square is inscribed in the circle. What is the perimeter of the inscribed square?

8. The diagonals of a rhombus are 18 cm and 36 cm. What is the area of the rhombus?

9. A cone has a height of 4 inches and a radius of 3 inches. What is the total surface area of the cone?

10. Two similar rectangular prisms have surface areas of 184 cm^2 and 736 cm^2 . What is the result when the ratio of their longest diagonals is divided by the ratio of their volumes?

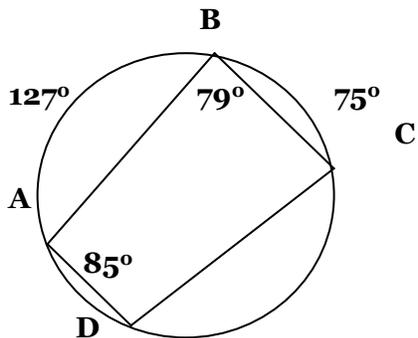
11. If a dart is thrown at the rectangular target shown below, what is the probability it will hit in the shaded area?



12. What is the sum of the number of faces of a dodecahedron, the number of edges of a square pyramid, and the number of vertices of an icosagon?

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13. \overline{BD} , the altitude to the hypotenuse of Right triangle ABC, divides the hypotenuse into segments measuring 4 cm and 5 cm. What is the product of the lengths of the two legs of triangle ABC?
14. In circle O, $m\angle B = 26^\circ$ and chords \overline{AC} and \overline{AB} are congruent. What is the measure of arc \widehat{BC} ?
15. What is the number of sides on a regular polygon whose interior angles measure 165° ?
16. A cylinder has a base with area $144\pi \text{ in}^2$ and a height of 32 in. What is the maximum length of a stick that could fit in the cylinder?
17. A rectangle has sides measuring x and $3x+2$ units. If the area of the rectangle is 65 square units, what is the perimeter of the rectangle?
18. The intersection of the medians of a triangle is called the _____.
19. Point B (7, -2) is reflected across the x-axis and rotated 180° about the origin, what are the new coordinates of Point B?
20. In a recent survey of 100 students, 53 students said that they liked Mexican food, 42 said that they liked Thai food, and 30 liked both Mexican and Thai food. How many did not like either?
21. The ends of the diameter of a circle are (3,7) and (-3, -1). What is the equation of the circle in standard form?
22. Tom took a random walk through the streets of Knoxville. If he started at the Knoxville Convention Center and walked 5 miles west, 3 miles north, 4 miles east, 4 miles north, 6 miles east, and 5 miles south, how far was he from the Convention Center, as the crow flies?
23. What is the sum of the measures of $\angle C$ and \widehat{AD} ? \widehat{AD} ?



24. If the lines $3x + 4y = 12$ and $2x - ky = 8$ form adjacent sides of a rectangle, then the value of k must be _____.

25. What is the sum of the areas defined by the line segments and the x-axis?

