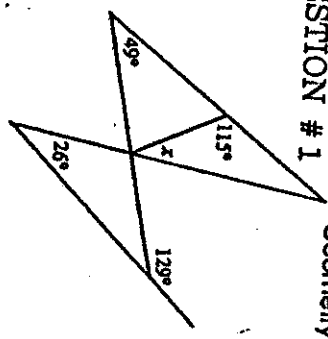


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QUESTION # 1 Geometry Team Round

In the figure to the right, all lines are straight. Find x .



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QUESTION # 2 Geometry Team Round

- A = the distance between points (3, 3) and (6, -1)
- B = the distance between points (0, 0) and (3, 4)
- C = the distance between points (3, 15) and (8, 3)
- D = the distance between points (-44, 18) and (-160, 105)

Find $A + B + C$.

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QUESTION # 3 Geometry Team Round

- 1 = the area of a triangle with side lengths 3, 4, and 5.
- 2 = the area of a triangle with side lengths 6, 8, and 10.
- 3 = the area of a triangle with side lengths 5, 12, and 13.
- 4 = the area of a triangle with side lengths 10, 24, and 26.

Find $4A + B + 4C + D$.

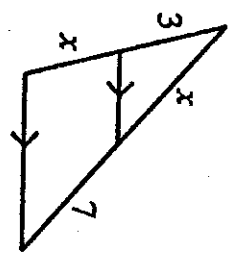
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QUESTION # 4

Geometry Team Round

Find x in the figure to the right.



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QUESTION # 5

Geometry Team Round

What is the area of an equilateral triangle with side length $\frac{2\sqrt{27}}{3}$?

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QUESTION # 6

Geometry Team Round

A cone, as high as it is wide at its base, has a volume of 18π . Find its height.

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QUESTION # 7 Geometry Team Round

What is the surface area of a cube with edge lengths of 7.5?

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QUESTION # 8 Geometry Team Round

Find the midpoint of the line segment connecting the points $(x + 4, 2y - 3)$ and $(x - 2, 4y - 9)$ in terms of x and y .

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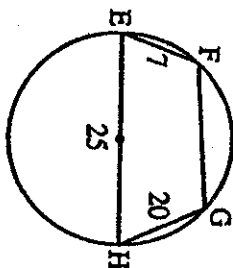
QUESTION # 9 Geometry Team Round

A triangle has vertices $(0, 0)$, $(12, 0)$, and $(6, 6)$. It is completely rotated 360° around the x -axis. What is the volume of the resulting region?

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QUESTION # 10 Geometry Team Round

Given quadrilateral $EFGH$ inscribed in a semicircle (\overline{EH} is a diameter of the circle). $EF = 7$, $GH = 20$, $EH = 25$. What is the perimeter of quadrilateral $EFGH$?



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QUESTION # 11 Geometry Team Round

In a square \overline{ABCD} , E is the midpoint of \overline{BC} and F is the midpoint of \overline{CD} . Line segments \overline{AF} and \overline{EF} are constructed. Find the ratio of the area of $\triangle ACEF$ to the area of quadrilateral $ABEF$.

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QUESTION # 12 Geometry Team Round

Find the area of the following circle: $x^2 + y^2 + 2x - 2y - 22 = 0$

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QUESTION # 13

Geometry Test, 11th Round

- A = the radius of a sphere with volume $32\pi/3$.
- B = the radius of a sphere with volume $500\pi/3$.
- C = the radius of a sphere with volume $256\pi/3$.
- D = the radius of a sphere with volume $4\pi/3$.

Find $A + B + C - D$.

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QUESTION # 14

Geometry Test, 11th Round

How many diagonals does a regular 81-gon have?

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QUESTION # 15

Geometry Test, 11th Round

A sphere is inscribed in a cube. The surface area of the sphere equals the volume of the sphere, and the surface area of the cube equals the volume of the cube. What is the diameter of the sphere?