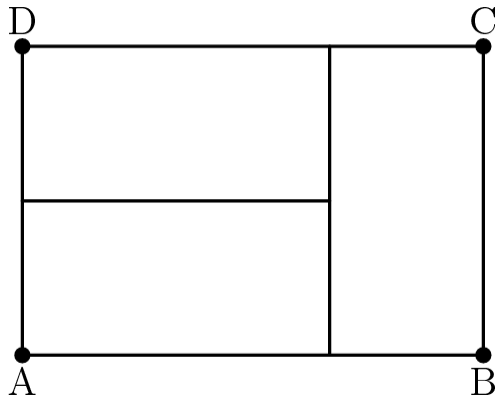
AMC 8, 2020, Problem 18

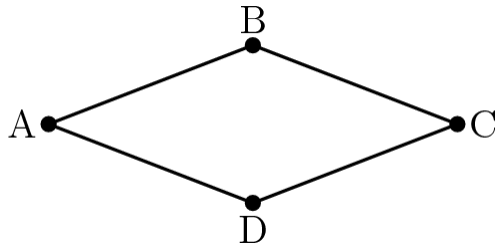
Three identical rectangles are put together to form rectangle $ABCD$, as shown in the figure below. Given that the length of the shorter side of each of the smaller rectangles is 5 feet, what is the area in square feet of rectangle $ABCD$?



$\textbf{(A)}\ 45 \qquad \textbf{(B)}\ 75 \qquad \textbf{(C)}\ 100 \qquad \textbf{(D)}\ 125 \qquad \textbf{(E)}\ 150$

AMC 8, 2019, Problem 4

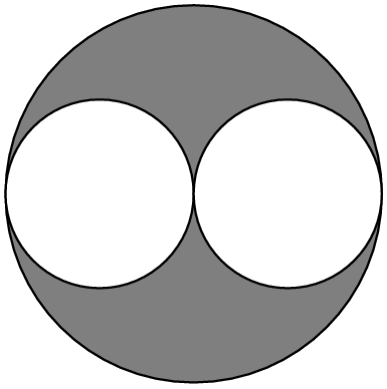
Quadrilateral $ABCD$ is a rhombus with perimeter 52 meters. The length of diagonal $\overline{AC}$ is 24 meters. What is the area in square meters of rhombus $ABCD$?



$\textbf{(A)}\ 60 \qquad \textbf{(B)}\ 90 \qquad \textbf{(C)}\ 105 \qquad \textbf{(D)}\ 120 \qquad \textbf{(E)}\ 144$

AMC 8, 2018, Problem 15

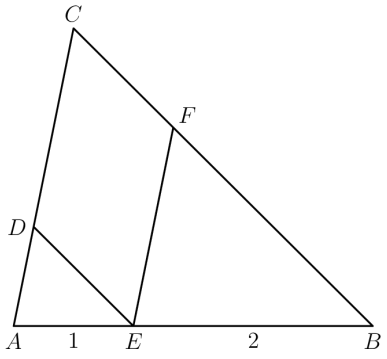
In the diagram below, a diameter of each of the two smaller circles is a radius of the larger circle. If the two smaller circles have a combined area of 1 square unit, then what is the area of the shaded region, in square units?



$\textbf{(A)}\ \frac{1}{4} \qquad \textbf{(B)}\ \frac{1}{3} \qquad \textbf{(C)}\ \frac{1}{2} \qquad \textbf{(D)}\ 1 \qquad \textbf{(E)}\ \frac{\pi}{2}$

AMC 8, 2018, Problem 20

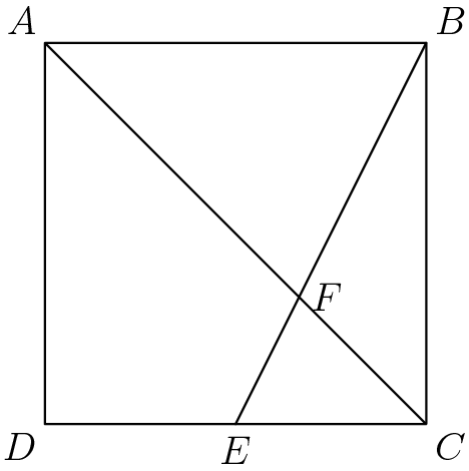
In $\triangle ABC,$ a point E is on $\overline{AB}$ with $AE = 1$ and $EB = 2$. Point D is on $\overline{AC}$ so that $\overline{DE} \parallel \overline{BC}$ and point F is on $\overline{BC}$ so that $\overline{EF} \parallel \overline{AC}$. What is the ratio of the area of $CDEF$ to the area of $\triangle ABC$?



$\textbf{(A)}\ \frac{4}{9} \qquad \textbf{(B)}\ \frac{1}{2} \qquad \textbf{(C)}\ \frac{5}{9} \qquad \textbf{(D)}\ \frac{3}{5} \qquad \textbf{(E)}\ \frac{2}{3}$

AMC 8, 2018, Problem 22

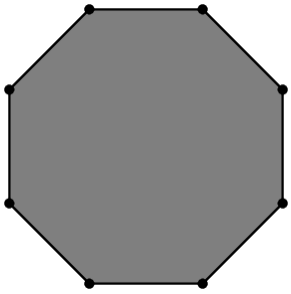
Point E is the midpoint of side $\overline{CD}$ in square $ABCD,$ and $\overline{BE}$ meets diagonal $\overline{AC}$ at F. The area of quadrilateral $AFED$ is 45. What is the area of $ABCD$?



$\textbf{(A)}\ 100 \qquad \textbf{(B)}\ 108 \qquad \textbf{(C)}\ 120 \qquad \textbf{(D)}\ 135 \qquad \textbf{(E)}\ 144$

AMC 8, 2018, Problem 23 (Also a probability problem!)

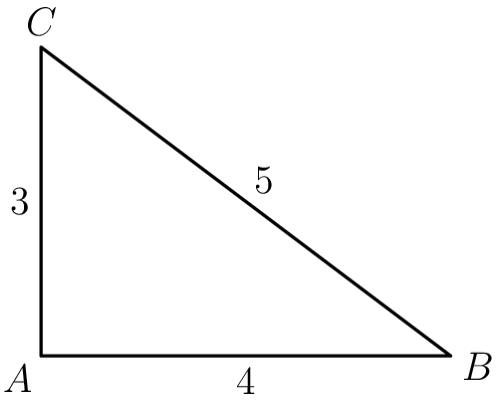
From a regular octagon, a triangle is formed by connecting three randomly chosen vertices of the octagon. What is the probability that at least one of the sides of the triangle is also a side of the octagon?



$\textbf{(A)}\ \frac{2}{7} \qquad \textbf{(B)}\ \frac{5}{42} \qquad \textbf{(C)}\ \frac{11}{14} \qquad \textbf{(D)}\ \frac{5}{7} \qquad \textbf{(E)}\ \frac{6}{7}$

AMC 8, 2017, Problem 16

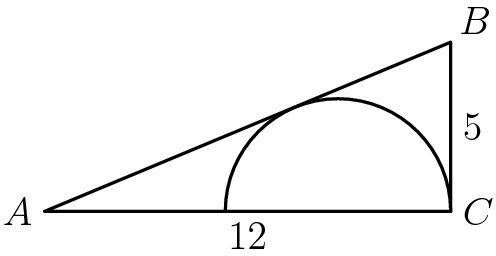
In the figure below, choose point D on $\overline{BC}$ so that $\triangle ACD$ and $\triangle ABD$ have equal perimeters. What is the area of $\triangle ABD$?



$\textbf{(A)}\ \frac{3}{4} \qquad \textbf{(B)}\ \frac{3}{2} \qquad \textbf{(C)}\ 2 \qquad \textbf{(D)}\ \frac{12}{5} \qquad \textbf{(E)}\ \frac{5}{2}$

AMC 8, 2017, Problem 22

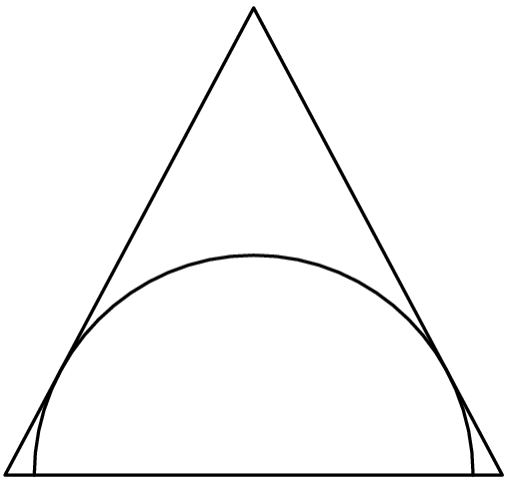
In the right triangle ABC, $AC = 12$, $BC = 5$, and angle C is a right angle. A semicircle is inscribed in the triangle as shown. What is the radius of the semicircle?



$\textbf{(A)}\ \frac{7}{6} \qquad \textbf{(B)}\ \frac{13}{5} \qquad \textbf{(C)}\ \frac{59}{18} \qquad \textbf{(D)}\ \frac{10}{3} \qquad \textbf{(E)}\ \frac{60}{13}$

AMC 8, 2016, Problem 25

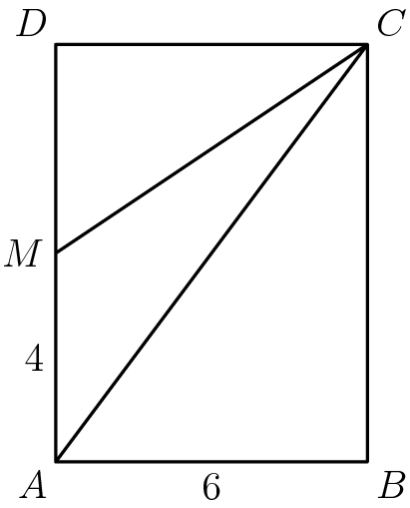
A semicircle is inscribed in an isosceles triangle with base 16 and height 15 so that the diameter of the semicircle is contained in the base of the triangle as shown. What is the radius of the semicircle?



$\textbf{(A)}\ 4\sqrt{3} \qquad \textbf{(B)}\ \frac{120}{17} \qquad \textbf{(C)}\ 10 \qquad \textbf{(D)}\ \frac{17\sqrt{2}}{2} \qquad \textbf{(E)}\ \frac{17\sqrt{3}}{2}$

AMC 8, 2016, Problem 2

In rectangle $ABCD$, $AB = 6$ and $AD = 8$. Point M is the midpoint of $\overline{AD}$. What is the area of $\triangle AMC$?

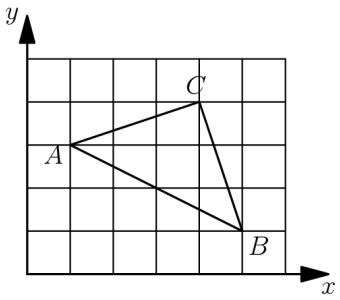


$\text{(A)}\ 12 \qquad \text{(B)}\ 15 \qquad \text{(C)}\ 18 \qquad \text{(D)}\ 20 \qquad \text{(E)}\ 24$

AMC 8, 2015, Problem 19

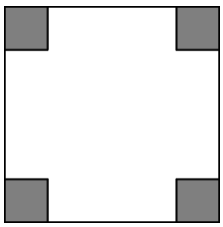
A triangle with vertices as $A = (1, 3)$, $B = (5, 1)$, and $C = (4, 4)$ is plotted on a 6×5 grid. What fraction of the grid is covered by the triangle?

$\textbf{(A)}\ \frac{1}{6} \qquad \textbf{(B)}\ \frac{1}{5} \qquad \textbf{(C)}\ \frac{1}{4} \qquad \textbf{(D)}\ \frac{1}{3} \qquad \textbf{(E)}\ \frac{1}{2}$



AMC 8, 2015, Problem 25

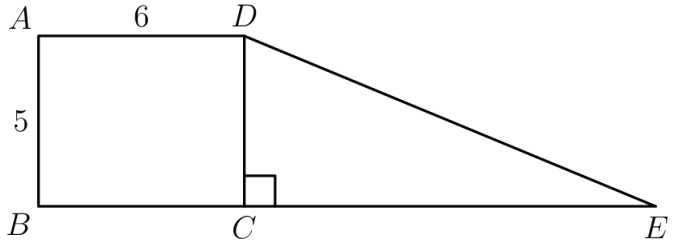
One-inch squares are cut from the corners of this 5-inch square. What is the area in square inches of the largest square that can be fitted into the remaining space?



$\text{(A)}\ 9 \qquad \text{(B)}\ 12\frac{1}{2} \qquad \text{(C)}\ 15 \qquad \text{(D)}\ 15\frac{1}{2} \qquad \text{(E)}\ 17$

AMC 8, 2014, Problem 14

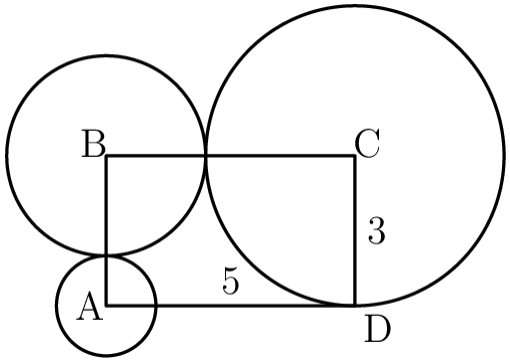
Rectangle $ABCD$ and right triangle DCE have the same area. They are joined to form a trapezoid, as shown. What is DE?



$\textbf{(A)}\ 12 \qquad \textbf{(B)}\ 13 \qquad \textbf{(C)}\ 14 \qquad \textbf{(D)}\ 15 \qquad \textbf{(E)}\ 16$

AMC 8, 2014, Problem 20

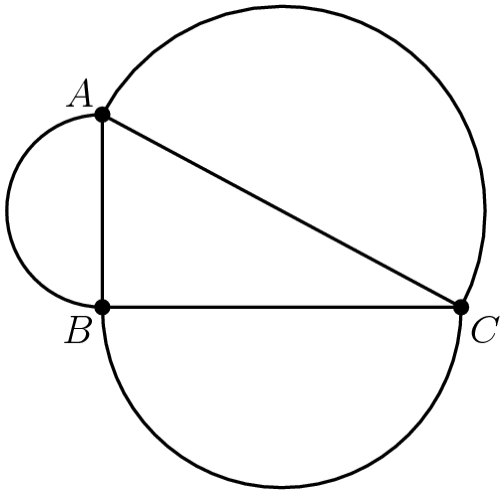
Rectangle $ABCD$ has sides $CD = 3$ and $DA = 5$. A circle of radius 1 is centered at A, a circle of radius 2 is centered at B, and a circle of radius 3 is centered at C. Which of the following is closest to the area of the region inside the rectangle but outside all three circles?



(A) 3.5 (B) 4.0 (C) 4.5 (D) 5.0 (E) 5.5

AMC 8, 2013, Problem 23

Angle ABC of $\triangle ABC$ is a right angle. The sides of $\triangle ABC$ are the diameters of semicircles as shown. The area of the semicircle on $\overline{AB}$ equals 8π, and the arc of the semicircle on $\overline{AC}$ has length 8.5π. What is the radius of the semicircle on $\overline{BC}$?



(A) 7 **(B)** 7.5 **(C)** 8 **(D)** 8.5 **(E)** 9