REMT 2004

ANSWERS

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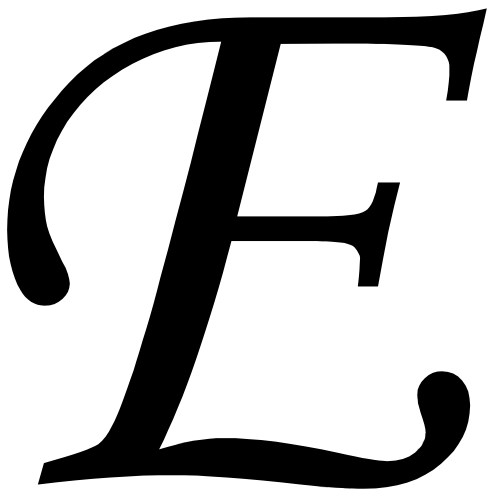


GEOMETRICAL

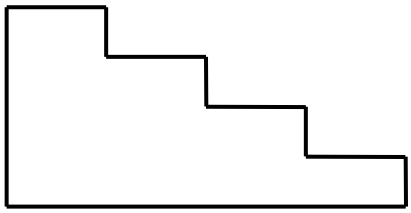
GEMS

_____ _____ _____

LAST NAME FIRST NAME GRADE

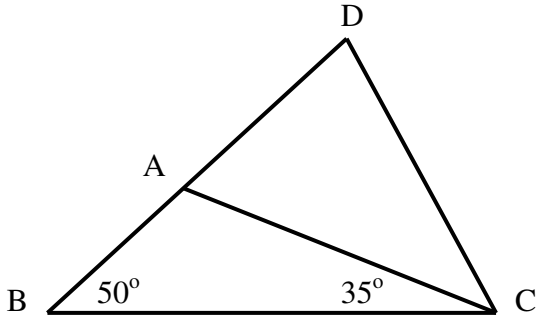
1. A certain circle has its area numerically equal to its circumference. What is the radius of this circle?

2. What is the area in square inches of this "staircase" figure, if each "stair" is 12 inches wide and 8 inches high?



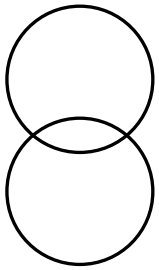
3. A certain triangle has two sides of length 10 and one side of length 12. What is its area?

4. Triangle ABC, with base angles measuring 50^o and 35^o, has side BA extended to form an isosceles triangle with BD = BC. What is the degree measure of angle ACD?

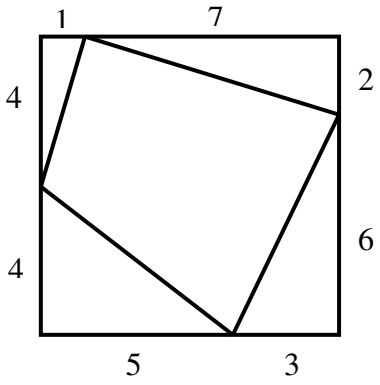


5. What is the area of a regular octagon if each of its sides is two units in length?

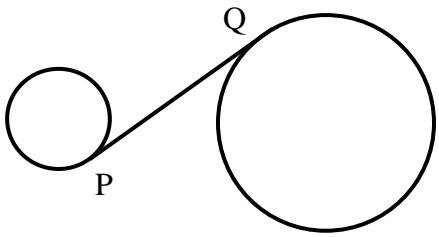
6. Two circles of radius 1 are drawn with their centers $\sqrt{2}$ units apart. What is the area of the figure-eight shape that the circles enclose?



7. The sides of an 8 by 8 square are cut by certain points into pieces of length 1 and 7, 2 and 6, 3 and 5, and 4 and 4, as shown. What is the area of the quadrilateral determined by these four points?

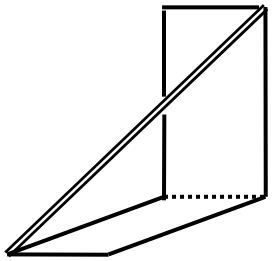


8. Circles of radius 1 and 2 are drawn with their centers 5 units apart. Segment PQ is drawn between the circles, tangent to the circles at P and Q. What is the length of PQ?

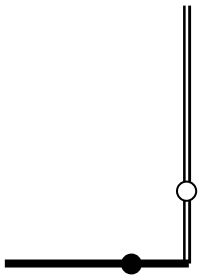


9. A cylindrical container has a circumference of of 22 inches, and a height of 10 inches. What is the volume of this container, to the nearest cubic inch?

10. A rectangular strip of metal measuring 5 inches by 20 inches is bisected by a line parallel to its shorter sides and is given a 90 degree fold along this line. Then a metal rod is welded to opposite corners of the strip for support. What is the length of this rod?



11. At a certain time of day, a flagpole casts a 40 foot shadow. At the same time, a commemorative medallion attached to the flagpole six feet above the ground has its shadow lying 4 feet from the base of the flagpole. How many feet high is the flagpole?



12. A sphere of radius 1 lies outdoors on flat ground. If the angle of elevation of the sun is 45 degrees, what is the distance between the point where the sphere touches the ground and the tip of the sphere's shadow?