3

2D NEED FORMULA

2010B

6. A circle is centered at O, $\overline{AB}$ is a diameter and C is a point on the circle with $\angle COB = 50°$. What is the degree measure of $\angle CAB$?

(A) 20　　(B) 25　　(C) 45　　(D) 50　　(E) 65

2003A

7. How many non-congruent triangles with perimeter 7 have integer side lengths?

(A) 1　　(B) 2　　(C) 3　　(D) 4　　(E) 5

2007B

7. All sides of the convex pentagon $ABCDE$ are of equal length, and $\angle A = \angle B = 90°$. What is the degree measure of $\angle E$?

(A) 90　　(B) 108　　(C) 120　　(D) 144　　(E) 150

2010B 7. A triangle has side lengths 10, 10, and 12. A rectangle has width 4 and area equal to the area of the triangle. What is the perimeter of this rectangle?

(A) 16   (B) 24   (C) 28   (D) 32   (E) 36

2004B 9. A square has sides of length 10, and a circle centered at one of its vertices has radius 10. What is the area of the union of the regions enclosed by the square and the circle?

(A) $200 + 25\pi$ (B) $100 + 75\pi$ (C) $75 + 100\pi$ (D) $100 + 100\pi$ (E) $100 + 125\pi$

2011A 9. A rectangular region is bounded by the graphs of the equations $y = a$, $y = -b$, $x = -c$, and $x = d$, where a, b, c, and d are all positive numbers. Which of the following represents the area of this region?

(A) $ac + ad + bc + bd$ (B) $ac - ad + bc - bd$ (C) $ac + ad - bc - bd$

(D) $-ac - ad + bc + bd$ (E) $ac - ad - bc + bd$

2008A 10. Each of the sides of a square S_1 with area 16 is bisected, and a smaller square S_2 is constructed using the bisection points as vertices. The same process is carried out on S_2 to construct an even smaller square S_3. What is the area of S_3?

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

2008B 10. Points A and B are on a circle of radius 5 and $AB = 6$. Point C is the midpoint of the minor arc AB. What is the length of the line segment AC?

(A) $\sqrt{10}$ (B) $\frac{7}{2}$ (C) $\sqrt{14}$ (D) $\sqrt{15}$ (E) 4

2012A 10. Mary divides a circle into 12 sectors. The central angles of these sectors, measured in degrees, are all integers and they form an arithmetic sequence. What is the degree measure of the smallest possible sector angle?

(A) 5   (B) 6   (C) 8   (D) 10   (E) 12

2017A 10. Joy has 30 thin rods, one each of every integer length from 1 cm through 30 cm. She places the rods with lengths 3 cm, 7 cm, and 15 cm on a table. She then wants to choose a fourth rod that she can put with these three to form a quadrilateral with positive area. How many of the remaining rods can she choose as the fourth rod?

(A) 16   (B) 17   (C) 18   (D) 19   (E) 20

2017B 10. The lines with equations $ax - 2y = c$ and $2x + by = -c$ are perpendicular and intersect at $(1, -5)$. What is c?

(A) -13 (B) -8 (C) 2   (D) 8   (E) 13