

2

2D need formula or calculation Geometry

2007B

1. Isabella's house has 3 bedrooms. Each bedroom is 12 feet long, 10 feet wide, and 8 feet high. Isabella must paint the walls of all the bedrooms. Doorways and windows, which will not be painted, occupy 60 square feet in each bedroom. How many square feet of walls must be painted?

(A) 678 (B) 768 (C) 786 (D) 867 (E) 876

2018B

1. Kate bakes a 20-inch by 18-inch pan of cornbread. The cornbread is cut into pieces that measure 2 inches by 2 inches. How many pieces of cornbread does the pan contain?

(A) 90 (B) 100 (C) 180 (D) 200 (E) 360

2012A

2. A square with side length 8 is cut in half, creating two congruent rectangles. What are the dimensions of one of these rectangles?

(A) 2 by 4 (B) 2 by 6 (C) 2 by 8 (D) 4 by 4 (E) 4 by 8

- 2013B 2. Mr. Green measures his rectangular garden by walking two of the sides and finds that it is 15 steps by 20 steps. Each of Mr. Green's steps is 2 feet long. Mr. Green expects a half a pound of potatoes per square foot from his garden. How many pounds of potatoes does Mr. Green expect from his garden?
- (A) 600 (B) 800 (C) 1000 (D) 1200 (E) 1400
- 2015A 2. A box contains a collection of triangular and square tiles. There are 25 tiles in the box, containing 84 edges total. How many square tiles are there in the box?
- (A) 3 (B) 5 (C) 7 (D) 9 (E) 11
- 2003A 3. A solid box is 15 cm by 10 cm by 8 cm. A new solid is formed by removing a cube 3 cm on a side from each corner of this box. What percent of the original volume is removed?
- (A) 4.5 (B) 9 (C) 12 (D) 18 (E) 24
- 2007A 3. An aquarium has a rectangular base that measures 100 cm by 40 cm and has a height of 50 cm. It is filled with water to a height of 40 cm. A brick with a rectangular base that measures 40 cm by 20 cm and a height of 10 cm is placed in the aquarium. By how many centimeters does the water rise?
- (A) 0.5 (B) 1 (C) 1.5 (D) 2 (E) 2.5
- 2011B 3. At a store, when a length is reported as x inches that means the length is at least $x - 0.5$ inches and at most $x + 0.5$ inches. Suppose the dimensions of a rectangular tile are reported as 2 inches by 3 inches. In square inches, what is the minimum area for the rectangle?
- (A) 3.75 (B) 4.5 (C) 5 (D) 6 (E) 8.75

2012B

3. The point in the xy -plane with coordinates $(1000, 2012)$ is reflected across the line $y = 2000$. What are the coordinates of the reflected point?
- (A) $(998, 2012)$ (B) $(1000, 1988)$ (C) $(1000, 2024)$
(D) $(1000, 4012)$ (E) $(1012, 2012)$

2001

4. What is the maximum number for the possible points of intersection of a circle and a triangle?
- (A) 2 (B) 3 (C) 4 (D) 5 (E) 6

2005A

4. A rectangle with a diagonal of length x is twice as long as it is wide. What is the area of the rectangle?
- (A) $\frac{1}{4}x^2$ (B) $\frac{2}{5}x^2$ (C) $\frac{1}{2}x^2$ (D) x^2 (E) $\frac{3}{2}x^2$

2012A

4. Let $\angle ABC = 24^\circ$ and $\angle ABD = 20^\circ$. What is the smallest possible degree measure for $\angle CBD$?
- (A) 0 (B) 2 (C) 4 (D) 6 (E) 12

2018B

4. A three-dimensional rectangular box with dimensions X , Y , and Z has faces whose surface areas are 24, 24, 48, 48, 72, and 72 square units. What is $X + Y + Z$?
- (A) 18 (B) 22 (C) 24 (D) 30 (E) 36

- 2006B 5. A 2×3 rectangle and a 3×4 rectangle are contained within a square without overlapping at any interior point, and the sides of the square are parallel to the sides of the two given rectangles. What is the smallest possible area of the square?
- (A) 16 (B) 25 (C) 36 (D) 49 (E) 64
- 2010A 5. The area of a circle whose circumference is 24π is $k\pi$. What is the value of k ?
- (A) 6 (B) 12 (C) 24 (D) 36 (E) 144