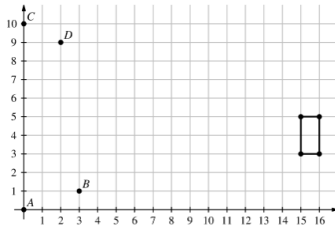# Review Game: Geometry

March 10, 2024

(1 point) A rectangle, with sides parallel to the x-axis and y-axis, has opposite vertices located at (15,3) and (16,5). A line is drawn through points A(0,0) and B(3,1). Another line is drawn through points C(0,10) and D(2,9). How many points on the rectangle lie on at least one of the two lines?
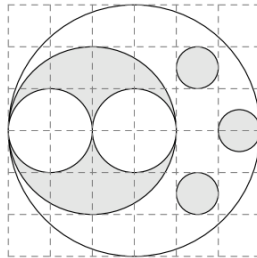

(A) 0   (B) 1   (C) 2   (D) 3   (E) 4

(2 points) What is the smallest whole number larger than the perimeter of any triangle with a side of length 5 and a side of length 19?

(A) 24   (B) 29   (C) 43   (D) 48   (E) 57

(3 points) The figure below shows a large white circle with a number of smaller white and shaded circles in its interior. What fraction of the interior of the large white circle is shaded?

(A) $\frac{1}{4}$ (B) $\frac{11}{36}$ (C) $\frac{1}{3}$ (D) $\frac{19}{36}$ (E) $\frac{5}{9}$

(4 points) A regular octahedron has eight equilateral triangle faces with four faces meeting at each vertex. Jun will make the regular octahedron shown on the right by folding the piece of paper shown on the left. Which numbered face will end up to the right of Q?
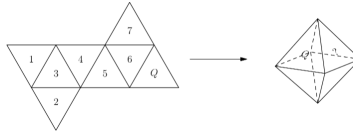

(A) 1   (B) 2   (C) 3   (D) 4   (E) 5

(5 points) The midpoints of the four sides of a rectangle are $(-3, 0), (2, 0), (5, 4)$, and $(0, 4)$. What is the area of the rectangle?

(A) 20   (B) 25   (C) 40   (D) 50   (E) 80

(6 points) The figure below shows a polygon $ABCDEFGH$, consisting of rectangles and right triangles. When cut out and folded on the dotted lines, the polygon forms a triangular prism. Suppose that $AH = EF = 8$ and $GH = 14$. What is the volume of the prism?
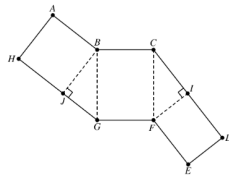
(A) 112   (B) 128   (C) 192   (D) 240   (E) 288

(7 points) A sphere with center has radius 6. A triangle with sides of length 15, 15, and 24 is situated in space so that each of its sides are tangent to the sphere. What is the distance between and the plane determined by the triangle?

(A) $2\sqrt{3}$ (B) 4   (C) $3\sqrt{2}$ (D) $2\sqrt{5}$ (E) 5