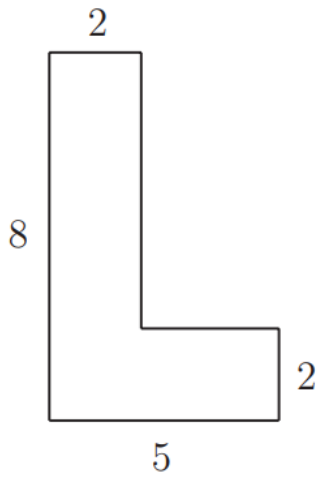
UNIT 1 EXERCISES 1-5

2D Geometry

2013A

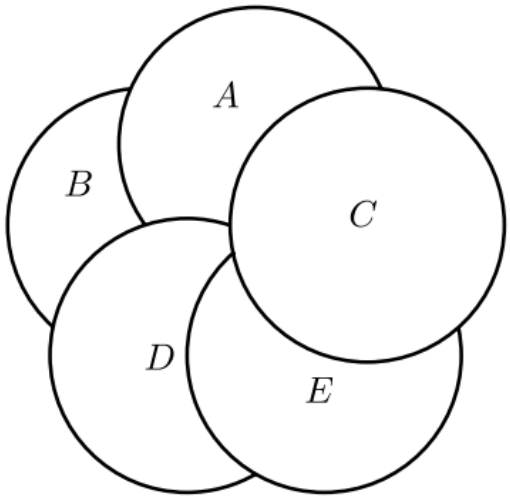
2010B 2. A big L is formed as shown. What is its area?



(A) 22 **(B)** 24 **(C)** 26 **(D)** 28 **(E)** 30

2011A

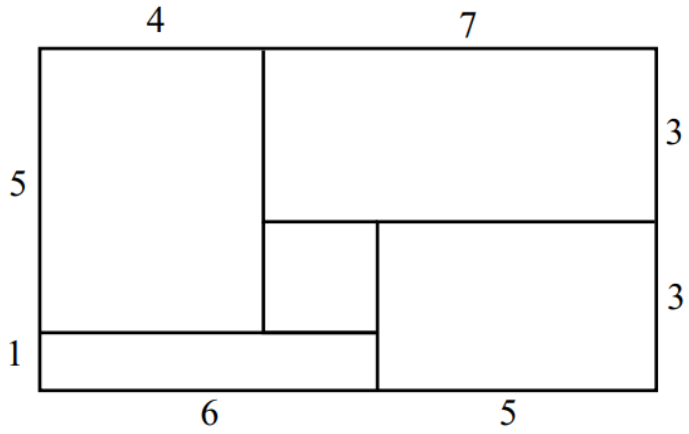
2. There are 5 coins placed flat on a table according to the figure. What is the order of the coins from top to bottom?



(A) (C, A, E, D, B) **(B)** (C, A, D, E, B) **(C)** (C, D, E, A, B)

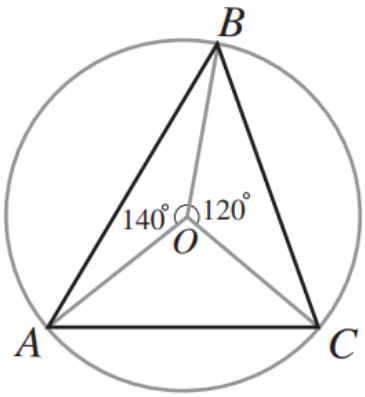
2012B

2003B 3. Rose fills each of the rectangular regions of her rectangular flower bed with a different type of flower. The lengths, in feet, of the rectangular regions in her flower bed are as shown in the figure. She plants one flower per square foot in each region. Asters cost \$1 each, begonias \$1.50 each, cannas \$2 each, dahlias \$2.50 each, and Easter lilies \$3 each. What is the least possible cost, in dollars, for her garden?



(A) 108 **(B)** 115 **(C)** 132 **(D)** 144 **(E)** 156

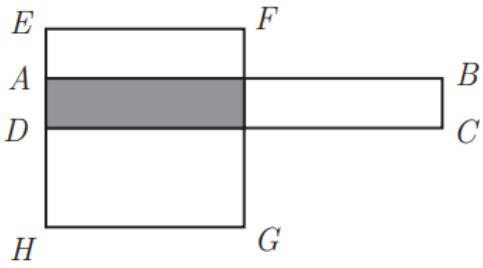
2007B 3. The point O is the center of the circle circumscribed about $\triangle ABC$, with $\angle BOC = 120^\circ$ and $\angle AOB = 140^\circ$, as shown. What is the degree measure of $\angle ABC$?



(A) 35 **(B)** 40 **(C)** 45 **(D)** 50 **(E)** 60

2010A

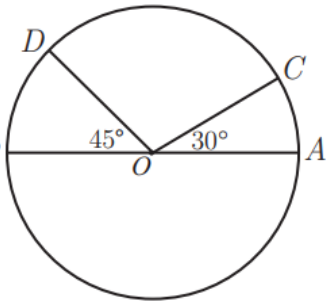
3. Rectangle $ABCD$, pictured below, shares 50% of its area with square $EFGH$. Square $EFGH$ shares 20% of its area with rectangle $ABCD$. What is $\frac{AB}{AD}$?



(A) 4 **(B)** 5 **(C)** 6 **(D)** 8 **(E)** 10

2008B

4. On circle O, points C and D are on the same side of diameter $\overline{AB}$, $\angle AOC = 30°$, and $\angle DOB = 45°$. What is the ratio of the area of the smaller sector COD to the area of the circle?



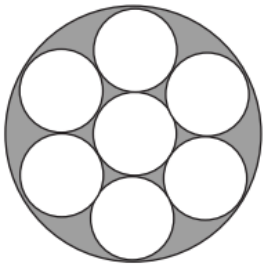
(A) $\frac{2}{9}$ **(B)** $\frac{1}{4}$ **(C)** $\frac{5}{18}$ **(D)** $\frac{7}{24}$ **(E)** $\frac{3}{10}$

2009B

4. A rectangular yard contains two flower beds in the shape of congruent isosceles right triangles. The remainder of the yard has a trapezoidal shape, as shown. The parallel sides of the trapezoid have lengths 15 and 25 meters. What fraction of the yard is occupied by the flower beds?

(A) $\frac{1}{8}$ **(B)** $\frac{1}{6}$ **(C)** $\frac{1}{5}$ **(D)** $\frac{1}{4}$ **(E)** $\frac{1}{3}$

2002A 5. Each of the small circles in the figure has radius one. The innermost circle is tangent to the six circles that surround it, and each of those circles is tangent to the large circle and to its small-circle neighbors. Find the area of the shaded region.



(A) π **(B)** 1.5π **(C)** 2π **(D)** 3π **(E)** 3.5π

2005B 5. An 8-foot by 10-foot floor is tiled with square tiles of size 1 foot by 1 foot. Each tile has a pattern consisting of four white quarter circles of radius 1/2 foot centered at each corner of the tile. The remaining portion of the tile is shaded. How many square feet of the floor are shaded?

(A) $80-20\pi$ **(B)** $60-10\pi$ **(C)** $80-10\pi$ **(D)** $60+10\pi$ **(E)** $80+10\pi$

2014B 5. Doug constructs a square window using 8 equal-size panes of glass, as shown. The ratio of the height to width for each pane is $5 : 2$, and the borders around and between the panes are 2 inches wide. In inches, what is the side length of the square window?

(A) 26 **(B)** 28 **(C)** 30 **(D)** 32 **(E)** 34