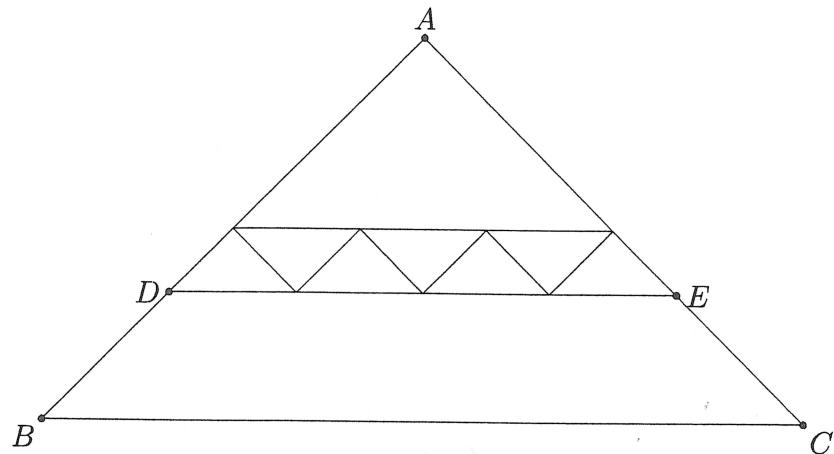


8 2018
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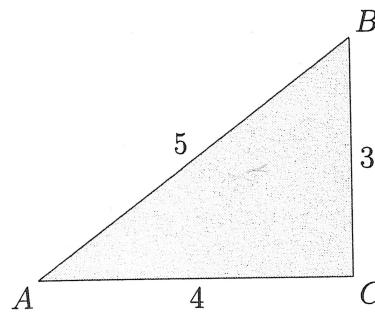
All of the triangles in the diagram below are similar to isosceles triangle ABC , in which $AB = AC$. Each of the 7 smallest triangles has area 1, and $\triangle ABC$ has area 40. What is the area of trapezoid $DBCE$?



(A) 16 (B) 18 (C) 20 (D) 22 (E) 24

11 2018
AMC12A

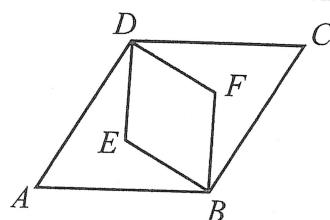
A paper triangle with sides of lengths 3, 4, and 5 inches, as shown, is folded so that point A falls on point B . What is the length in inches of the crease?



(A) $1 + \frac{1}{2}\sqrt{2}$ (B) $\sqrt{3}$ (C) $\frac{7}{4}$ (D) $\frac{15}{8}$ (E) 2

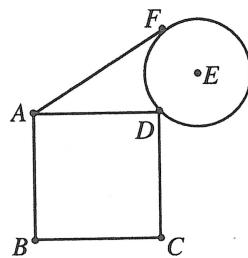
2006
AMC12B

13. Rhombus $ABCD$ is similar to rhombus $BFDE$. The area of rhombus $ABCD$ is 24, and $\angle BAD = 60^\circ$. What is the area of rhombus $BFDE$?



(A) 6 (B) $4\sqrt{3}$ (C) 8 (D) 9 (E) $6\sqrt{3}$

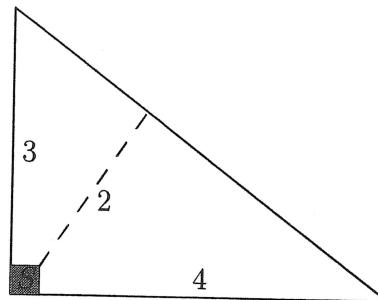
2006 17. Square $ABCD$ has side length s , a circle centered at E has radius r , and r and s are both rational. The circle passes through D , and D lies on \overline{BE} . Point F lies on the circle, on the same side of \overline{BE} as A . Segment AF is tangent to the circle, and $AF = \sqrt{9 + 5\sqrt{2}}$. What is r/s ?



(A) $\frac{1}{2}$ (B) $\frac{5}{9}$ (C) $\frac{3}{5}$ (D) $\frac{5}{3}$ (E) $\frac{9}{5}$

17 2018
AMC12A

Farmer Pythagoras has a field in the shape of a right triangle. The right triangle's legs have lengths 3 and 4 units. In the corner where those sides meet at a right angle, he leaves a small unplanted square S so that from the air it looks like the right angle symbol. The rest of the field is planted. The shortest distance from S to the hypotenuse is 2 units. What fraction of the field is planted?



(A) $\frac{25}{27}$ (B) $\frac{26}{27}$ (C) $\frac{73}{75}$ (D) $\frac{145}{147}$ (E) $\frac{74}{75}$

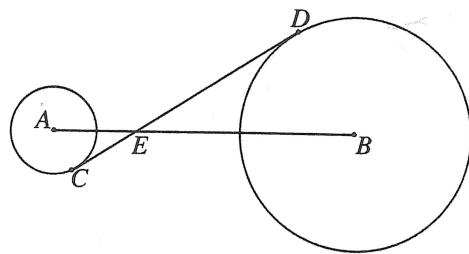
18 2018
AMC12A

Triangle ABC with $AB = 50$ and $AC = 10$ has area 120. Let D be the midpoint of \overline{AB} , and let E be the midpoint of \overline{AC} . The angle bisector of $\angle BAC$ intersects \overline{DE} and \overline{BC} at F and G , respectively. What is the area of quadrilateral $FDBG$?

(A) 60 (B) 65 (C) 70 (D) 75 (E) 80

16. Circles with centers A and B have radii 3 and 8, respectively. A common internal tangent intersects the circles at C and D , respectively. Lines AB and CD intersect at E , and $AE = 5$. What is CD ?

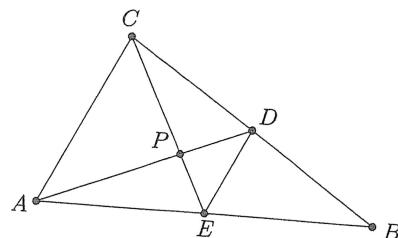
2006
AMC12A



(A) 13 (B) $\frac{44}{3}$ (C) $\sqrt{221}$ (D) $\sqrt{255}$ (E) $\frac{55}{3}$

10. In $\triangle ABC$, medians \overline{AD} and \overline{CE} intersect at P , $PE = 1.5$, $PD = 2$, and $DE = 2.5$. What is the area of $AEDC$?

2013
AMC10B



(A) 13 (B) 13.5 (C) 14 (D) 14.5 (E) 15