
Problem Set - 19 Jan 2024

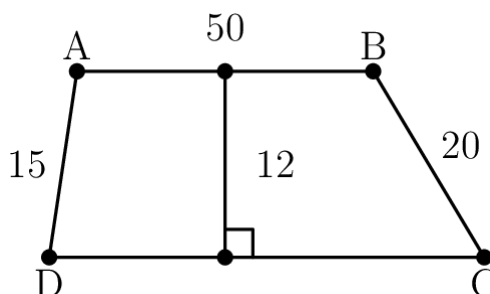
PROBLEM 1 (2014 AMC 8 #4)

The sum of two prime numbers is 85. What is the product of these two prime numbers?

- (A) 85 (B) 91 (C) 115 (D) 133 (E) 166

PROBLEM 2 (2011 AMC 8 #20)

Quadrilateral $ABCD$ is a trapezoid, $AD = 15$, $AB = 50$, $BC = 20$, and the altitude is 12. What is the area of the trapezoid?



- (A) 600 (B) 650 (C) 700 (D) 750 (E) 800

PROBLEM 3 (2013 AMC 12B #13)

The internal angles of quadrilateral $ABCD$ form an arithmetic progression. Triangles ABD and DCB are similar with $\angle DBA = \angle DCB$ and $\angle ADB = \angle CBD$. Moreover, the angles in each of these two triangles also form an arithmetic progression. In degrees, what is the largest possible sum of the two largest angles of $ABCD$?

- (A) 210 (B) 220 (C) 230 (D) 240 (E) 250

PROBLEM 4 (2022 AMC 10B #20)

Let $ABCD$ be a rhombus with $\angle ADC = 46^\circ$. Let E be the midpoint of \overline{CD} , and let F be the point on \overline{BE} such that \overline{AF} is perpendicular to \overline{BE} . What is the degree measure of $\angle BFC$?

- (A) 110 (B) 111 (C) 112 (D) 113 (E) 114

PROBLEM 5 (2010 AMC 12A #17)

Equiangular hexagon $ABCDEF$ has side lengths $AB = CD = EF = 1$ and $BC = DE = FA = r$. The area of $\triangle ACE$ is 70% of the area of the hexagon. What is the sum of all possible values of r ?

- (A) $\frac{4\sqrt{3}}{3}$ (B) $\frac{10}{3}$ (C) 4 (D) $\frac{17}{4}$ (E) 6
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