

2003 Sample Questions

AMC 12

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
7. How many non-congruent triangles with perimeter 7 have integer side lengths?
- (A) 1 (B) 2 (C) 3 (D) 4 (E) 5
23. How many perfect squares are divisors of the product $1! \cdot 2! \cdot 3! \cdots 9!$?
- (A) 504 (B) 672 (C) 864 (D) 936 (E) 1008
24. If $a \geq b > 1$, what is the largest possible value of $\log_a(a/b) + \log_b(b/a)$?
- (A) -2 (B) 0 (C) 2 (D) 3 (E) 4
25. Let $f(x) = \sqrt{ax^2 + bx}$. For how many real values of a is there at least one positive value of b for which the domain of f and the range of f are the same set?
- (A) 0 (B) 1 (C) 2 (D) 3 (E) infinitely many