

1. A square is cut into two equal rectangles, each with perimeter 36. Find the area of the square.
A. 36 B. 64 C. 100 D. 144 E. 196
2. Last year, the cost of milk was 150% of the cost of bread. If the cost of milk has risen by 20% and the cost of bread has risen by 25%, what percentage of the current cost of bread is the current cost of milk?
A. 120 B. 135 C. 144 D. 160 E. 175
3. Angles are complements if they add to 90° . Let $\angle A$ be nine times $\angle B$ and the complement of $\angle B$ be nine times the complement of $\angle A$. Find $\angle B$.
A. 6° B. 8° C. 9° D. 10° E. 12°
4. Find the product of all values of x for which $f(x) = \frac{x-3}{x^2-10x-24}$ is undefined.
A. -72 B. -24 C. 18 D. 24 E. 72
5. If you roll three fair dice, what is the probability that the product of the three numbers rolled is even?
A. $1/8$ B. $1/6$ C. $1/2$ D. $5/6$ E. $7/8$
6. If $f(x) = ax^2 + bx + c$, $f(-1) = 10$, $f(0) = 5$, and $f(1) = 4$, find $f(2)$.
A. 7 B. 8 C. 9 D. 10 E. 11
7. A lattice point is a point with both coordinates integers. How many lattice points lie on or inside the triangle with vertices $(0, 0)$, $(10, 0)$, and $(0, 8)$?
A. 51 B. 52 C. 53 D. 54 E. 55
8. The perimeter of a rectangle is 52 and its diagonal is 20. Find its area.
A. 134 B. 138 C. 142 D. 144 E. 148
9. The consecutive even numbers are written side-by-side to form the infinite decimal $0.24681012141618\dots$. Find the digit in the 2010th decimal place.
A. 2 B. 4 C. 5 D. 6 E. 7
10. When AMATYC is transformed into a 6-digit number by replacing identical letters with identical digits and different letters with different digits, the result is divisible by 35. Find the final 2 digits for the least such number.
A. 25 B. 35 C. 45 D. 65 E. 75
11. Let $f(x) = \ln(x + \sqrt{1+x^2})$. Find $f^{-1}(\ln 7)$.
A. $\frac{11}{7}$ B. $\frac{24}{7}$ C. $\frac{7}{2}$ D. $\frac{7}{24}$ E. $\frac{7}{11}$