

1. Referring to the Declaration of Independence (1776), Lincoln introduced his Gettysburg Address in 1863 with "Four score and seven years ago ...". How many years is a score of years?
A. 5 B. 10 C. 20 D. 25 E. 50
2. Let $R = \{(x, y) \mid 3 \leq x^2 + y^2 \leq 5\}$. The area of R is
A. 32 B. 20 C. 4π D. 2π E. none of these
3. At which equal sign does the error occur in the following proposed proof that $+1 = -1$?
 $+1 = \sqrt{+1} = \sqrt{(-1)(-1)} = \sqrt{-1} \cdot \sqrt{-1} = i \cdot i = i^2 = -1$ (Note: i denotes $\sqrt{-1}$.)
A B C D E
4. Twenty years ago Jake built a house that is now half as old as Jake was when he built it. How old is Jake now?
A. 30 B. 40 C. 50 D. 80 E. none of these
5. Given that f is a linear function with $f^{-1} = f$ and $f(4) = 10$, find $f(9)$.
A. 5 B. 6 C. 7 D. 8 E. 9
6. If a number is randomly selected from $\{-10, -5, -3, -2, -1, 0, 1, 3, 5, 10\}$, find the probability that one more than the square of the selected number is a solution for $x^2 + 50 = 15x$.
A. 0.1 B. 0.2 C. 0.3 D. 0.4 E. none of these
7. An angle of 23° is inscribed in a circle of radius 9. What is the length, to the nearest tenth, of the intercepted arc?
A. 7.2 B. 6.5 C. 6.1 D. 5.4 E. none of these
8. A 3×3 magic square uses the integers 1, 2, ..., 9 once each in such a way that each column, each row, and each diagonal sums to 15. Find the value for n for the magic square, a portion of which is shown below.

8		
n		7

- A. 2 B. 3 C. 4 D. 5 E. 6
9. Given that $f(x) = x^2$, $-10 \leq x \leq -5$, find $f^{-1}(x)$.
A. $f^{-1}(x) = \sqrt{x}$, $25 \leq x \leq 100$ B. $f^{-1}(x) = \sqrt{-x}$, $25 \leq x \leq 100$
C. $f^{-1}(x) = \sqrt{-x}$, $-100 \leq x \leq -25$ D. $f^{-1}(x) = -\sqrt{x}$, $25 \leq x \leq 100$
E. The inverse of f is not a function.
10. Consider the points (5,7), (-4,-4), (3,2), (2,2), (7,-6), (8,1), and (4,4). How many distinct triangles with positive area can be made by choosing any three of these points as vertices?
A. 34 B. 35 C. 209 D. 210 E. none of these