Sample Questions from past AMC-12 exams

1. The number of real solution to the equation $\frac{x}{100} = \sin x$ is

A 61 B 62 C 63 D 64 E 65

2. Which of the following equations have the same graph?

I $y = x - 2$ II $y = \frac{x^2 - 4}{x + 2}$ III $(x + 2)y = x^2 - 4$

A I and II only
B I and III only
C II and III only
D I, II, and III
E None. All the equations have different graphs.

3. In the sequence $\ldots, a, b, c, d, 0, 1, 1, 2, 3, 5, 8$ each term is the sum of the two terms to its left. Find a.

A -3 B -1 C 0 D 1 E 3

4. The following four statements, and only these are found on a card:

On this card exactly one statement is false
On this card exactly two statements are false.
On this card exactly three statements are false.
On this card exactly four statements are false.

Assume each statement is either true or false. Among them the number o false statements is exactly

A 0 B 1 C 2 D 3 E 4

5. A calculator has a key which replaces the displayed entry with its square, and another key which replaces the displayed entry with its reciprocal. Let y be the final result if one starts with an entry $x \neq 0$ and alternately squares and reciprocates n times. Assuming the calculator is completely accurate (e.g. no roundoff or overflow) then y equals

A $x^{\left((-2)^n\right)}$ B x^{2n} C x^{-2n} D $x^{-\left(2^n\right)}$ E $x^{\left((-1)^n 2n\right)}$

6. Suppose hops, skips, and jumps are specific units of length. If *b* hops equals *c* skips, *d* jumps equals *e* hops, and *f* jumps equals *g* meters, then one meter equals how many skips?

A $\frac{bdg}{cef}$ B $\frac{cdf}{beg}$ C $\frac{cdg}{bef}$ D $\frac{cef}{bdg}$ E $\frac{ceg}{bdf}$

ANSWERS:
1(D) 2(E) 3 (A) 4(D) 5(A) 6(D)