
Set 1

1. How many even primes are divisible by 3?
2. Find the sum of the number of edges and number of vertices of a cube.
3. Bill flips 4 coins. How many possible outcomes are there? (For example, one outcome is HHTH.)
4. Sarah has a string of length 10, and makes a circle out of it. What is the radius of the circle?
Express your answer in terms of π .

Set 2

5. Find the area of an equilateral triangle with side length 2.
6. If the function $f(x) = 2x^2 - 1$ and $g(x) = x + 2$, find $f(g(3))$.
7. A trapezoid has 2 right angles. Its legs have lengths 4 and 5, and the shorter of the other two sides has length 4. Find its area.
8. Find the probability that when two fair, six-sided dice are rolled, their sum is greater than 9.

Set 3

9. If $\frac{x(D+8)}{2} = 4x + 16$, find the value of xD .
10. If 10 coins are tossed, what is the probability that there are exactly 7 heads?
11. Evaluate $1 - 2 + 3 - 4 + \cdots + 99 - 100$.
12. Rabin Karp is trying to find 2 identical strings. He randomly draws strings from a collection of 100 different pairs of strings. How many strings must he draw until he is sure that he has at least one matching pair?