

Name:

MVMSC Monthly Math Contest

Time: Whole lunch period.

Directions: No calculators. For answers expressible in multiple ways, any is allowed, but fractions must be simplified and denominators rationalized. Your score is the sum of the point values of problems you solve.

#	Question	Answer
1 (1)	What is the sum of the squares of the first 10 positive integers?	
2 (1)	Find the radius of a circle with area equal to its circumference.	
3 (2)	Let r and s be the roots of the quadratic $x^2 - 16x + 64 = 0$. Find $1/r + 1/s$.	
4 (2)	How many distinct right triangles with integer side lengths have a hypotenuse of length 65?	
5 (2)	How many non-similar triangles have angles whose degree measures are distinct positive integers in arithmetic progression?	
6 (3)	How many pairs of positive integers (m, n) , with m and n both less than 100, have the property that $m^3 - n^3 = 5$?	
7 (3)	Let ABC be a triangle with $AB = 20$, $BC = 27$, and $\sin^2 A + \sin A \sin C + \sin^2 C = \sin^2 B$. What is the area of ABC ?	