Math Bowl Round 10

Problem 1: Given the polar graph r = cos(2theta), what is the area of one of the rose petals on the graph?
Ans: pi/8

Problem 2: Suppose the graph y = (x-3)^2 intersects the line y = 25 at two points. What is the sum of the x-values at those two points?
Ans: 6

Problem 3: Find the arclength of the function y = ⅔ * x^(3/2) from 0 to 3.
Ans: 14/3

Problem 4: How many distinct combinations of the letters in PIKACHU are there?
Ans: 128

Problem 5: Which Millenium Prize Problem is, as of now, the only one solved and has a verified solution?
Ans: Poincare Conjecture

Problem 6: Given that a circle in the x-y plane has center (1,3) and goes through the point (4,5), what is the radius of the circle?
Ans: sqrt(13)

Problem 7: How many sides does a regular polygon have if each interior angle equals 174 degrees?
Ans: 60

Problem 8: What is the limit as x approaches 0 of x^x?
Ans: 1

Problem 9: In what quadrant is the angle 3000 degrees?
Ans: II or 2nd quadrant

Problem 10: What is the 20th term of the arithmetic sequence -10, 2, 14
Ans: 218

If this question is ever reached there is no time limit**
Sudden Death: What is the sum of the first 30 even integers>
Ans: 930