Cantor’s Contest

Instructions:

Attempt as many or as few problems as you wish. Please go to http://bit.ly/1AX1ppn to submit your answers. Candidates with the most marks will be awarded prizes! (Amazon Vouchers). Incorrect answers will lose marks so if you wish to submit your answers be sure they are correct. The deadline for submission is 27/02/2015. We hope you enjoy the puzzles, good luck!

1. Cantor drives to work at an average speed of 90km/h. On the way back, he drives slowly because he is pondering a maths problem. His average speed on the way home is 30km/h. What is his average speed for the entire trip, in km/h?
   A. 40  B. 45  C. 60  D. 65  E. 70

2. Cantor wakes up at 6am every morning to study maths. Over breakfast he wonders how many times in 24 hours the angle between the minute hand and hour hand on his ordinary analogue alarm clock is exactly 90 degrees. What is the answer?
   A. 22  B. 24  C. 30  D. 44  E. 48

3. Cantor stands 2m away from a wall. He is required to walk to the wall, which is 12m long, tap the wall somewhere, and then walk to Hilbert. What is the shortest distance in which this can be done?
   A. 13m  B. 14m  C. 15m  D. 16m  E. 17m

4. Cantor attends a maths meeting every day. After it is over, his wife always picks him up with her car and drives him home. One day, Cantor’s meeting ends an hour early. Cantor decides to walk home immediately. As he is walking home he meets his wife on her way to pick him up, not knowing he had ended early. She drives him back home and they arrive 20min earlier than they usually would. For how long did Cantor walk?
   A. 30min  B. 40min  C. 45min  D. 50min  E. 55min

5. A mathematician approaches Cantor’s house and asks him to reveal how old his children are. Cantor replies: “I have 3 children. The product of their ages is 36.” The mathematician, confused, asks Cantor to give him more clues. “The sum of their ages is my house number.” The mathematician, thinking hard, still could not find out the age of the Children and asks Cantor for one last clue. Cantor replies: “my eldest son loves Linear Algebra.” The mathematician quickly realised the age of the children. What was it?
   A. 1,1,36  B. 1,2,18  C. 2,2,9  D. 3,3,4  E. 1,4,9