

Reader Investigations: April 2001

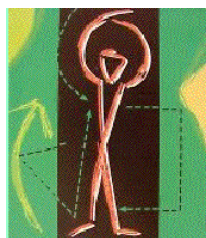
Readers are invited to submit results of their or their learners' investigations of the following problems for the October 2001 issue of the **KZN Mathematics Journal**.

1. Six railway stops on a suburb railway line lie on a straight line. A bus-stop to service all six railway stops has to be built so that the sum of the total distances from the railway stops to the bus-stop is a minimum. Where should the bus-stop be built?
 - (a) What if there are eight or ten railway stops? Can you make a generalization, and prove it?
 - (b) Where should the bus-stop be built if the number of railway stops are odd? Can you make a generalization, and prove it?
2. How many integer pairs $(x; y)$ are solutions to $6x + 15y = 85$?
3. Accurately construct the circumcenter, centroid, and ortho-center of an arbitrary triangle. What do you notice regarding these three centers? Also measure and compare the distances between the points. What do you notice? Can you prove your observations?
4. A palindrome is a number that reads the same from the right as from the left, for example, 121. Find the shortest and longest gaps between successive palindromic years (being years that read the same from the right as from the left, e.g. A.D. 1221).

XXXXXXXX

Visit SA MATHEMATICS OLYMPIAD (SAMO)

at <http://science.up.ac.za/samo>



The website provides useful information about the history, organization and development of the competition, prizes, sample questions, past papers, training camps, SA Mathematical Talent Search, The Mathematical Digest, links to other mathematics competitions around the world, etc.