RIDER STRATEGIES FOR SOLVING SCHOOL GEOMETRY PROBLEMS

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TARGET AUDIENCE: SP& FET Band Mathematics Teachers

DURATION: 2 hour workshop

MAXIMUM NO. OF PARTICIPANTS: 30

MOTIVATION:

With geometry now being a compulsory topic examined across grades 10, 11 and 12 as per Curriculum and Assessment Policy Statement (CAPS), many teachers who have not taught senior school geometry nor had studied geometry beyond school level or even done geometry at high school level /university level are now faced with the task of teaching geometry to their learners. This has created a large amount of anxiety on the ground for both teachers and learners. This workshop aims to assist mathematics teachers to facilitate the teaching of problem solving within a geometry context through selecting and using a relevant rider strategy (or combination of rider strategies) as the solving of the geometry rider may necessitate. Particular emphasis will be placed on the writing of proofs inclusive of building arguments through using theorems and definitions as stipulated in the Department of Basic Education 2014 grade 12 examination guidelines for mathematics.

CONTENT

In this workshop, we will be focussing on the solving of geometry problems through using the following kinds of rider strategies in selected ways:

1. The congruency approach
2. Direct application of theorem(s)
3. The algebraic approach
4. Use of other branches of mathematics
5. Reductio ad absurdum (Proof by Contradiction)
6. Analytic approach

ABSRACT

The workshop will focus Euclidean Geometry specified in CAPS for grades 10-12 and is aimed at engaging SP &FET mathematics teachers in solving geometry riders associated with quadrilateral, triangle and circle geometries. In so doing mathematics teachers will be working in pairs on a set of riders that invokes one (or a combination) of the abovementioned strategies. Participants will discuss and share with the group the strategy/strategies that used to solve a given rider as well as challenges experienced. Emphasis will be placed on the writing of proof arguments that is substantiated by relevant reason(s) as suggested in 2014 grade 12 examination guidelines for mathematics.