

Math 523 Additional Information, Fall 2017; CRN 12226

Composition of final mark:

Homework	Midterm 1	Midterm 2	Midterm 3	Paper
45	15	15	15	10

Paper: A ± 10 -page paper, **typed in LaTeX, 12 point font**, on *dominating broadcasts in graphs*, is due on **December 11**. Both a LaTeX file and a pdf file must be emailed to me (kieka@uvic.ca) **before noon** on the due date. Marks will be given for content (7), exposition (2) and the correct use of LaTeX (1).

Instructions

1. Download the 2009 master's thesis titled "Dominating Broadcasts in Graphs" by Sarada Herke from the UVic library website.
2. Write a short introduction (< 1 page) explaining what a dominating broadcast is, who introduced the concept and why it is worth studying.
3. With notation as in the thesis, determine $\gamma(K_m \square K_n)$ and $\gamma_b(K_m \square K_n)$ for arbitrary $n \geq m \geq 2$. Sketch $K_m \square K_n$, showing a minimum dominating set and a γ_b -broadcast. (If you can't make LaTeX figures, use any other method and import it.)
4. Give an example of a tree T such that $\gamma_b(T) < \min\{\text{rad}(T), \gamma(T)\}$.
5. Explain what the main result of the thesis is and give a summary of the proof. This is the main part of your paper.
6. **Bonus (2 marks)** The thesis contains a method for determining the broadcast domination number of a tree (Section 6.5.3). Write this method as a structured algorithm.