



## MAT 4183 Mid-term Exam

1 November, 2017.

Duration: 80 minutes

Family Name: \_\_\_\_\_

First Name: \_\_\_\_\_

Student number: \_\_\_\_\_

[7] 1	
[9] 2	
[7] 3	
[9] 4	
[10] 5	
[9] 6	
[8] 7	
[7] 8	
[7] 9	
Total	

1. You have 80 minutes to complete this exam. This is a closed book exam, and no notes of any kind are permitted. The use of calculators, cell phones, or similar devices is not permitted. All implanted cyber devices not necessary for life-support must be disabled at the beginning of the exam.
2. The correct answer requires reasonable justification written legibly and logically.
3. **You must attempt at least one of questions 1, 2 and 3 at least two of questions 4–9, all of which will count in your total. However, 32 points will earn 100%.** The marks for each question are indicated above and inside the paper. (It is possible to score more than 100%.)
4. Unless otherwise stated, all vector spaces are over the reals and may be assumed to be finite dimensional.
5. Please use the space provided, including the backs of pages if necessary. If you need scrap paper, please ask.