

McGill University

Quiz 2

Version B

MATH 141

Name and Student ID:

Examiner: Hadi Bigdely

Wednesday, May 23, 2012

Associate Examiners: Bahareh Mirza Hossein, Janine Bachrachas

3:00-4:00 pm

Time = 60 minutes

Write your exam version in the answer sheet. No calculators!

Show all your work: marks are not given for answers alone.

Enclose this question sheet in your folded answer sheet.

(1) Showing all your work evaluate the following integrals:

(a) (8 Marks)

$$\int x^3 e^{x^2} dx$$

(b) (8 Marks)

$$\int \frac{x^3}{\sqrt{x^2+9}} dx$$

(c) (10 Marks)

$$\int_0^4 \frac{2x+3}{x^2-5x+6} dx$$

- (2) (10 Marks) Showing all your work, find the length of the loop of the curve
 $x = 18t - 6t^3$, $y = 18t^2$.

- (3) (14 Marks) Draw the curve $r = \sin(2\theta)$. This curve and $r = \cos(2\theta)$ define a number of regions in the plane. Showing all your work, carefully find the area of the region inside both of them

Good Luck