

University of Lethbridge
Department of Mathematics and Computer Science
5 December, 2017
MATH 1560 - Test #6 – Individual Stage
Examiner: Sean Fitzpatrick

Print your name and student number clearly in the space above. You may remove this cover page, and use the back for scrap paper. If you want any work on the back of this page to be graded, you must clearly indicate this on the page containing the corresponding question.

Answer the questions in the space provided. Show all work and necessary justification. Partial credit may be awarded for partially correct work.

No outside aids are permitted, with the exception of a basic calculator.

MATH 1560: Test 6

This page left intentionally blank. You may use this page for rough work.

MATH 1560: Test 6

1. Compute the following antiderivatives:

[3] (a) The antiderivative F of $f(x) = 2x + \sec^2(x)$ such that $F(0) = 4$.

[3] (b) $\int (3x^2 + 2\sqrt{x} - 5) \, dx$

[3] (c) $\int \left(\cos(x) - \frac{1}{\sqrt{1-x^2}} \right) \, dx$

[3] (d) $\int x^3 e^{x^4+2} \, dx$

MATH 1560: Test 6

2. Use Part I of the Fundamental Theorem of Calculus to compute the derivatives of the following functions:

[2] (a) $F(x) = \int_2^x \sin(t^2 + 3t) \, dt$

[3] (b) $G(x) = \int_x^{x^2} \sqrt{t^4 + 1} \, dt$

3. Use Part II of the Fundamental Theorem of Calculus to evaluate the following definite integrals:

[3] (a) $\int_0^1 (3x^2 - 2x + 4) \, dx$

[4] (b) $\int_0^{\pi/2} \cos(x) \sin^3(x) \, dx$