

Name:

# MATH 320: Homework 0

**Due** \_\_\_\_\_ : Turn in a hard copy, neat and stapled.

This homework is designed as a calculus review of the concepts we will use later in the semester. You will be expected to solve all parts of these questions by hand, showing all work and without the aide of technology.

1. Solve the following derivatives:

- (a)  $\frac{d}{dx} 14x^7$
- (b)  $\frac{d}{dx} [x^{-3} + \frac{1}{7}x^2]$
- (c)  $\frac{d}{dx} \sqrt{7x}$
- (d)  $\frac{d}{dx} e^{6x}$
- (e)  $\frac{d}{dx} \ln(5x)$
- (f)  $\frac{d}{dx} 8x^2 e^{2x}$
- (g)  $\frac{d^2}{dx^2} [\frac{1}{3}x^6 + 4e^{-3x}]$

2. Solve the following integrals. Make sure to show work; can check against answers provided:

- (a)  $\int_0^{1.5} \frac{1}{2} dx$
- (b)  $\int_0^1 3x^2 dx$
- (c)  $\int_0^1 \frac{3}{14} [x^2 + x] dx$
- (d)  $\int_1^\infty 3e^{-3x} dx$
- (e)  $\int_0^2 0.25 x e^{-0.5x} dx$
- (f)  $\int_0^{0.5} \int_0^1 3x dy dx$

Integral answers:

- (a) 0.75    (b) 1    (c) 5/28    (d)  $\approx 0.05$     (e)  $\approx 0.264$     (f) 0.375