MATH 1042 REVIEW PROBLEMS FOR FINAL Fall 2016

1. Text: **James Stewart**, *Calculus, Early Transcendentals*, 8th Edition, Cengage learning.
2. *Math 1042 ADDITIONAL Homework Problems*

5.3: 7, 13, 14, 29, 37, 42, 61

5.4: 32, 33, 41

5.5: 31, 43, 44, 69

Review Chapter 5: Exercises 8, 15, 34, 47, 49

6.2: 3, 27

Review Chapter 6: Exercises 1, 6, 7, 16ab

7.1: 3, 5, 27

7.2: 1, 4, 7, 21, 22, 29, 57, 61

7.4: 9, 19, 23, 28, 64, 66a

7.5: 7, 37, 73

Review Chapter 7: 10, 30, 73, 75

11.6: 3, 4, 5, 10, 19, 25, 29, 35, 37; also A11: 5a, 5b, 5d, 5e

11.8: 3, 11, 12, 15, 20, 29, 30

11.9: 1, 3, 4, 5, 6, 8, 13a, 16, 17, 25, 27, Example 2

11.10: 3, 4, 35, 37, 38, 54, 56. Example 11a

Review Chapter 11: True-False Quiz: 4, 5, 6, Exercises: 14, 16, 18, 24, 26, 41, 50

1. Please note that you need to remember the following Maclaurin's series

$$\boxed{\frac{1}{1-x} = \sum_{n=0}^{\infty} x^n, \quad \text{converges for} \quad |x| < 1, \qquad e^x = \sum_{n=0}^{\infty} \frac{x^n}{n!}}$$

2. Following integrals can be used without work.

$$\boxed{\int \frac{1}{a^2+x^2}\,dx = \frac{1}{a}\tan^{-1}\frac{x}{a} + C, \qquad \int \tan x\,dx = \ln|\sec x| + C, \qquad \int \sec x\,dx = \ln|\sec x + \tan x| + C}$$

3. Following limits can be used without proof.

$$\boxed{\lim_{n\to\infty} \frac{\ln n}{n^a} = 0 \quad \text{if} \quad a > 0; \qquad \lim_{n\to\infty} \sqrt[n]{n} = \lim_{n\to\infty} n^{1/n} = 1; \qquad \lim_{n\to\infty} \frac{n^c}{e^n} = 0 \quad \text{for } c > 0; \qquad \lim_{n\to\infty} \left(1 + \frac{b}{n}\right)^n = e^b \quad \text{for any real } b.}$$

4. The following trigonometric identities must be remembered.

$$\boxed{\sin^2\theta = \frac{1}{2}(1 - \cos 2\theta), \quad \cos^2\theta = \frac{1}{2}(1 + \cos 2\theta), \quad \sec^2\theta = 1 + \tan^2\theta}$$

CLASS Review Session:

Tuesday, December 13, 11:30am - 1:30pm at Gladfelter 21

Wednesday, December 14, 2:00pm - 4:00pm at Gladfelter 21