KFUPM, DEPARTMENT OF MATHEMATICS AND STATISTICS

MATH 102-SECTIONS 04, 14 : TEST 4, T 171, NOVEMBER 21, 2017

Name : ....

ID : .....

Exercise 1. Evaluate the following indefinite integral

$$I = \int \sqrt{9 - 4x^2}\, \mathrm{dx}.$$

Exercise 2. Evaluate the following indefinite integral

$$I = \int \frac{x - 9}{x^2 + 3x - 10}\, \mathrm{dx}.$$

Exercise 3. Set up the DIPF of

$$F(x) = \frac{x^2 + 9}{(x^2 - 1)(x^4 - 1)(x^2 - 3x + 2)(x^4 + 2x^2 + 1)}.$$

Exercise 4. Evaluate the following indefinite integral

$$I = \int \frac{1 + 2\tan(x)}{\tan(x) - 2}\, \mathrm{dx}.$$

Exercise 5. Determine whether the improper integral :

$$I = \int_0^3 \frac{x}{x - 2}\, \mathrm{dx}$$

converges or diverges.

Exercise 6. Evaluate the following improper integral :

$$I = \int_0^{+\infty} \frac{xe^{-x^2}}{4 + e^{-x^2}}\, \mathrm{dx}.$$