الاسم: الكود:

Math. 1: Mid-Term Exam	November 2016	15 Marks	Time: 60 Minutes

[1]Find $\mathbf{y`}$:

(a) $y = 3x + x^3 - \cos x$ y`=

(b) $y = \sqrt{x} + 2\sin x^2$ y`=

(c) $y = (x^2 + \tan x)^{-5}$ y`=

(d) $y = \sin 3x + \sin^3 x$ y`=

(e) $y = x^5 . \sec x$ y`=

(f) $y = \frac{\cos x}{x^8}$ y`=

[2]Find the limits:

(a) $\lim_{x\to -1} \frac{\sqrt[3]{x} + 1}{x^5 + 1} =$

(b) $\lim_{x\to 0} \frac{x^{10} + \sin^8 x}{x^8 + \tan^8 x} =$

(c) $\lim_{x\to 0} \frac{\sin 3x}{x + 2x^3} =$

(d) $\lim_{x\to \infty} \frac{x^3 - 2x + 1}{3 + x + 4x^3} =$

[3]Determine the extrema and inflection points of the function: $f(x) = 2x^3 - 6x^2 - 9$

[4]Write the Maclurin's expansion of the function: $f(x) = x^2 . \cos 2x$

Math.1 Mid-Term Exam** Autumn 2016 15 Marks

[1]Find $\mathbf{y`}$:

(a) $y = x^{-4} - 3\cos 2x$ (b) $y = \sqrt{x} - 3\cos x^2$ (c) $y = (2 + \cot x)^5$

(d) $y = \tan x^3 - \tan^3 x$ (e) $y = x^4 . \sec x$ (f) $y = \frac{x^2}{x - \sin x}$

[2]Find the limits:

(a) $\lim_{x \to 1} \frac{1 - \sqrt[7]{x}}{x^5 - 1}$ (b) $\lim_{x \to 0} \frac{1 - \cos x}{x + \sin 2x}$ (c) $\lim_{x \to 0} \frac{x - \tan 3x}{x - \sin 2x}$ (d) $\lim_{x \to \infty} \sqrt{\frac{x^2 + x}{3 + 4x^2}}$

[3](a)Determine maximum and minimum points of the function: $f(x) = x^3 - 3x^2 + 2$

(b) Write the Maclurin's expansion of the function: $f(x) = x^3 . \sin x^2$