

Brief solutions to selected problems in homework 08

1. Section 4.2: Solutions, common mistakes and corrections:

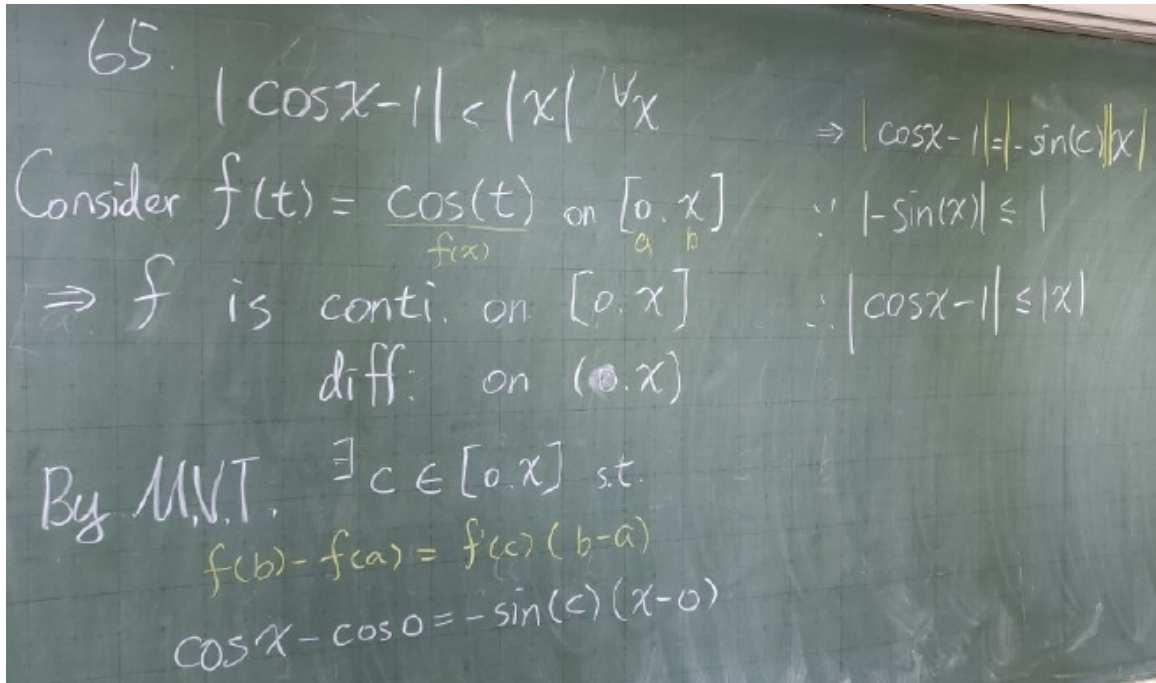


Figure 1: Solution to Section 4.2, problem 65

2. Section 4.3: Solutions, common mistakes and corrections:

74

$$f'(x) = 3ax^2 + 2bx + c$$

$$\textcircled{1} \quad f(0) = 0, \quad f(1) = -1$$

$$d = 0, \quad a + b + c = -1$$

$$\textcircled{2} \quad f'(1) = f'(0) = 0$$

$$c = 0, \quad 3a + 2b = 0$$

$$\Rightarrow a = 2, \quad b = -3$$

Figure 2: Solution to Section 4.3, problem 74

77.

$$f'(x) = e^x - 2 \quad , \quad f'(x) = 0 \text{ at } \ln(2)$$
$$f'(x) < 0 \text{ on } [0, \ln(2))$$
$$f'(x) > 0 \text{ on } (\ln(2), 1]$$

f has an absolute minimum at $\ln(2)$

$$\underline{f(0) = 1} \quad , \quad f(1) = e - 2$$

absolute maximum

Figure 3: Solution to Section 4.3, problem 77