Calculus II, Spring 2023 (Thomas' Calculus Early Transcendentals 13ed), http://www.math.nthu.edu.tw/~wangwc/

Brief solutions to selected problems in homework 07

1. Section 14.4: Solutions, common mistakes and corrections:

OSMAL

Figure 1: Section 14.4, problem 10

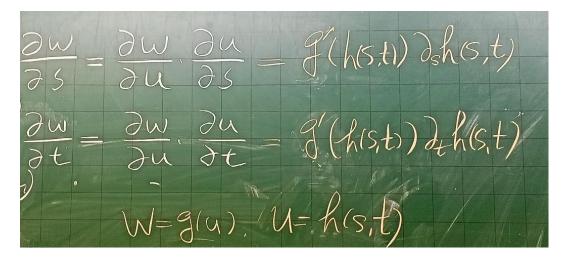


Figure 2: Section 14.4, problem 21

W 24 DW Dw -25 $\partial_x g(h(r,s,t), k(r,s,t)) \cdot \partial_s h(r,s,t)$ $\partial_y g(h(r,s,t), k(r,s,t)) \cdot \partial_s k(r,s,t)$ dy g

Figure 3: Section 14.4, problem 24

14,4 1951 (i) $F(x) = \int_{0}^{x} \sqrt{t^{2}+x^{2}} dt$ (ii) $G_{1}(x,x) = \int_{0}^{x} \sqrt{t^{2}+x^{2}} dt$ $\Rightarrow F(\chi) = \frac{2}{2} \frac{du}{d\chi} + \frac{1}{2}$ (iv)= , 128423 G(u(x), x) $(x) = \chi^2$ G . War) + 02G . 1 $Lu^{*}+\chi^{3}\cdot u(x)+\int u^{*}\partial_{x}$ (iii) F(x) = G(u,x), (u=x)Fix= DyG. 2x4 + DxG. 1 Same

Figure 4: Section 14.4, problem 51

2. Section 14.5: Solutions, common mistakes and corrections:

<u>vf</u> (a) pt(1 $-\nabla t(1,-1)$ **秋**日 Uz (C) $D_{\vec{n}} f(1,-1) = 0$, $\vec{n} = \frac{4}{5}$ ($\vec{e}, \vec{n} = \frac{4}{5}$ ($\vec{e}, \vec{n} = \frac{4}{5}$ ($\vec{e}, \vec{n} = \frac{4}{5}$ 174 1 $D_{if}(1,-1) = (3i-4j)(U_{ii}+U_{ij}) = 3u_{i}$ 111-411 U.

Figure 5: Section 14.5, problem 24