

**EVEN ANSWERS TO HOMEWORK “TO FINISH BY
JANUARY 21”**

Chapter 13.1, page 833:

10 (a)-(c): 5, 3, 7

30: The set of all points on or between the concentric circles with radii 1 and 5 and centered at the origin

Chapter 15.1, page 933:

6: (a) 0 (b) 1 (c) The domain of f is $\{(x, y) | y > 1 - x\}$

30: (a) VI (b) V (c) I (d) IV (e) II (f) III

53-58: B III; C II; F V; A VI; D IV; E I

Chapter 15.3, page 955:

2: $f_T \sim 2.5$, $f_H \sim .6$; f_T is the rate of change of the wind chill with respect to temperature and at a constant humidity when $H = 60$ and $T = 92$. In other words, you expect the wind chill to be at about $105 + 2.5$ when $(H, T) = (60, 93)$. f_H is the rate of change of the wind chill with respect to humidity and at a constant temperature when $H = 60$ and $T = 92$. In other words, you expect the wind chill to be at about $105 + .6$ when $(H, T) = (61, 92)$.

4: (a) $\frac{\partial f}{\partial t}$ is the rate of change of wave heights with respect to time when considering a certain constant wind velocity. $\frac{\partial f}{\partial v}$ is the rate of change of wave heights with respect to wind velocity when considering a certain constant time. ; (b) $f_v(40, 15) \sim 1.1$, $f_t(40, 15) \sim .9$; (c) 0

6: (a) - (b) - (c) + (d) -

8: $f_x(2, 1) \sim .8$, $f_y(2, 1) \sim -2.1$

10: $f_x = \frac{-1}{\sqrt{3}}$, $f_y = 0$

12: $f_x = e^{-x^2-y^2}(1 - 2x^2)$, $f_y = -2xye^{-x^2-y^2}$

14: $f_x = 5x^4 + 9x^2y^2 + 3y^4$, $f_y = 6x^3y + 12xy^3$

16: $\frac{\partial z}{\partial x} = \frac{y}{x}$, $\frac{\partial z}{\partial y} = \ln x$

18: $f_x = yx^{y-1}$, $f_y = x^y \ln x$

20: $f_s = \frac{t^4 - s^2 t^2}{(s^2 + t^2)^2}$, $f_t = \frac{2s^3 t}{(s^2 + t^2)^2}$

66: (a) - (b) + (c) + (d) - (e) +