

**EVEN ANSWERS TO HOMEWORK “TO FINISH BY  
JANUARY 28”**

Chapter 15.3:

60:  $f_{rss} = -2s^{-2}$ ,  $f_{rst} = 0$

Chapter 15.4:

2:  $z - 18 = 24(x - 1) + (y - 2)$

12:  $L(x, y) = 2 + \frac{1}{3}(x - 5) - \frac{2}{3}(y - 3)$

20:  $f(v, t) \sim 28 + 1.15(v - 40) + .45(t - 20)$

24:  $dv = -y^2 \sin(xy)dx + (\cos(xy) - xy \sin(xy))dy$

Chapter 15.5:

4:  $\frac{\partial z}{\partial t} = \left(\frac{x}{x+2y} + \ln(x+2y)\right) \cos t - \frac{2x}{x+2y} \sin t$

8:  $\frac{\partial z}{\partial s} = \frac{1}{y}e^t - \frac{x}{y^2}e^{-t}$ ,  $\frac{\partial z}{\partial t} = \frac{s}{y}e^t + \frac{xs}{y^2}e^{-t}$

16:  $g_r(1, 2) = -24$ ,  $g_s(1, 2) = 28$

36: (a) A rise in temperature causes a decrease in wheat production. An increase in rainfall causes an increase in wheat production. (b) -1.1

Chapter 15.6:

40 (a)  $-x + 2y = 3$