

Partial solutions for 1-5 11 13 14 15 17 19 20

1.  $z = 4x - y - 6$

2.  $z = 8x - 8y + 11$

3.  $z = x - y + 1$

4.  $z = \frac{1}{4}x + y - 2$

5.  $z = -x - y$

11.  $L(x, y) = 6x + 4y - 23$

13.  $L(x, y) = 2x + y - 1$

14.  $L(x, y) = -x + \frac{1}{2}y + \frac{3}{2}$

15.  $L(x, y) = 2x + 2y + \pi - 4$

17.  $L(x, y) = x + 1$

19.  $L(x, y) = x - y + 9$ .  $f(2.2, 4.9) \approx L(2.2, 4.9) = 6.3$

20.  $L(x, y) = x + y$ .  $f(1.02, 0.97) \approx L(1.02, 0.97) = 1.99$