$$f(x,y,z) = \cos(2x+2y+4z) \quad \Rightarrow$$
$$f_x = -\sin(2x+2y+4z)(2) = -2\sin(2x+2y+4z),$$
$$f_{xy} = -2\cos(2x+2y+4z)(2) = -4\cos(2x+2y+4z),$$
$$f_{xyz} = -4(-\sin(2x+2y+4z))(4) = 16\sin(2x+2y+4z) \quad \text{and}$$
$$f_y = -\sin(2x+2y+4z)(2) = -2\sin(2x+2y+4z),$$
$$f_{yz} = -2\cos(2x+2y+4z)(4) = -8\cos(2x+2y+4z),$$
$$f_{yzz} = -8(-\sin(2x+2y+4z))(4) = 32\sin(2x+2y+4z).$$