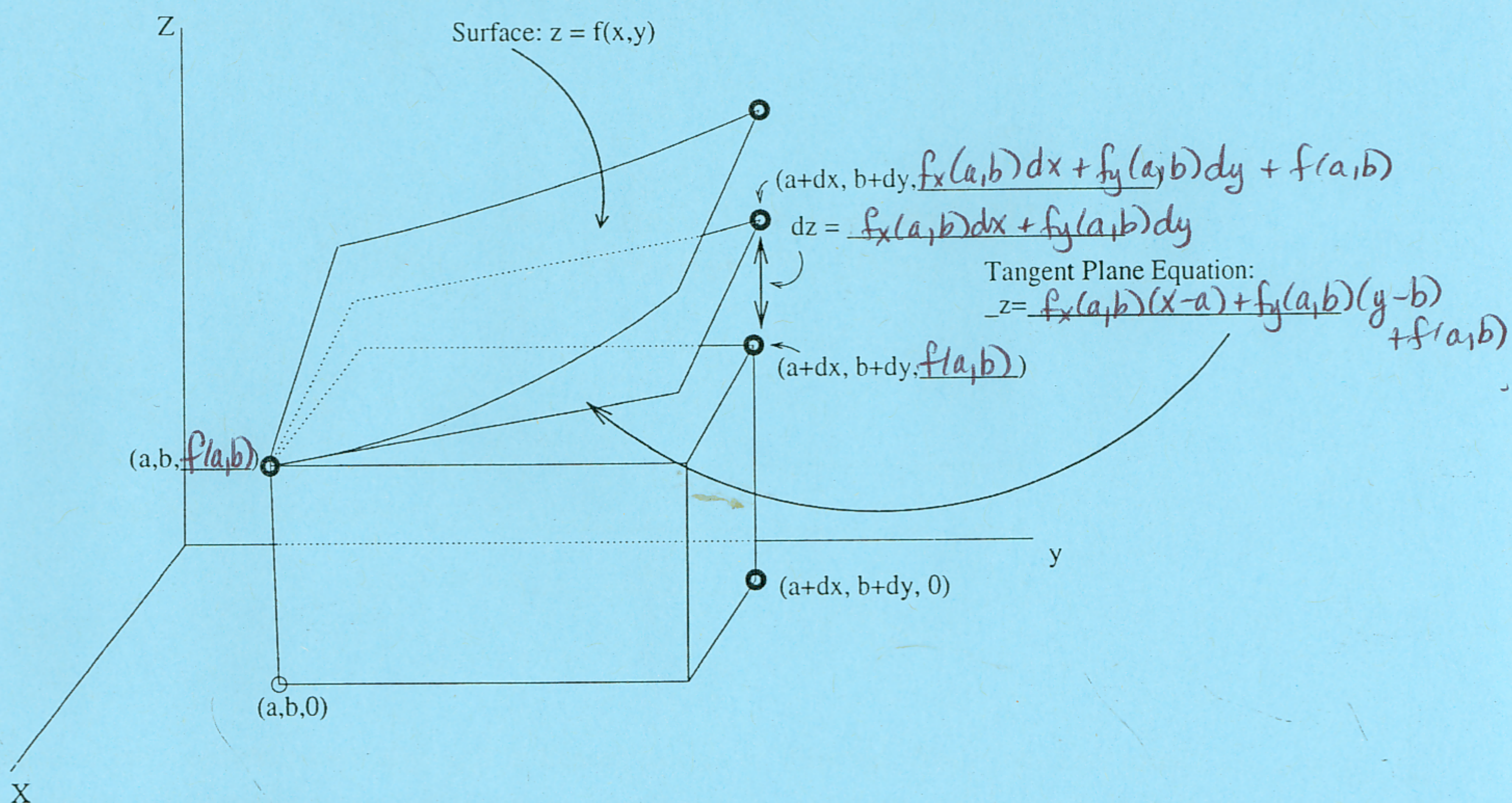


\*Extra Credit [4 points] Fill the blanks:



\*\*OR [4 points] Explain how part (b) of problem 4 gives you information about whether or not the limit exists in part (a) of problem 4.

Notice that every level curve I drew ~~gives me~~ gives me a route to approach  $(0,0)$ , and they all correspond to different heights, or  $z$ -values. For example the level curve with  $z=2$  is  $y = -2x$ . I can approach  $(0,0)$  along  $y = -2x$  and since  $z = f(x, y) = 2$  at every point on this line, it seems the limit should be 2. But I can also approach  $(0,0)$  along the  $y$ -axis (i.e. the line  $x=0$ ), and along this line  $z = f(x, y) = 0$ , so it seems the limit should be zero. We get a different value for the limit for each level curve, so the limit cannot exist.