$\boxed{12.4}$ The equation of the plane containing (a, b, c), with slope m is the x-direction and slope n is y-direction is

$$z = c + m(x-a) + n(y-b)$$

$\boxed{14.3}$ the plane tangent to $z=f(x,y)$ at (a,b,c) is

$$z = L(x,y) = f(a,b) + f_x(a,b)(x-a) + f_y(a,b)(y-b)$$

which can be used to approximate the change in z for points (x,y) around (a,b):

$$\Delta z \approx f_x(a,b)\Delta x + f_y(a,b)\Delta y$$

Def: $dz = f_x\, dx + f_y\, dy$

$$\boxed{dz \approx \Delta z}$$

$\boxed{13.3}$ The equation of the plane through (a,b,c) with normal vector $\vec{n} = n_1\vec{i} + n_2\vec{j} + n_3\vec{k}$ is

$$n_1(x-a) + n_2(y-b) + n_3(z-c) = 0$$

$\boxed{14.5}$ the plane tangent to $f(x,y,z)=k$ at (a,b,c)

$$f_x(a,b,c)(x-a) + f_y(a,b,c)(y-b) + f_z(a,b,c)(z-c) = 0$$