12.

$$\tan(xyzw) - xy + 5wz = 3$$

$$\underbrace{\tan(xyzw) - xy + 5wz - 3}_{F} = \underbrace{0}_{\text{ZERO}}$$

$$\frac{\partial w}{\partial x} = -\frac{F_x}{F_w}$$

$$= -\frac{\sec^2(xyzw)\cdot yzw - y}{\sec^2(xyzw)\cdot xyz + 5z}$$

$$\frac{\partial w}{\partial y} = -\frac{F_y}{F_w}$$

$$= -\frac{\sec^2(xyzw)\cdot xzw - x}{\sec^2(xyzw)\cdot xyz + 5z}$$

$$\frac{\partial w}{\partial z} = -\frac{F_z}{F_w}$$

$$= -\frac{\sec^2(xyzw)\cdot xyw + 5w}{\sec^2(xyzw)\cdot xyz + 5z}$$