$$\boxed{}{}^{\,i}_{\,a} = \frac{d}{dt}\,\boxed{}{}^{\,i}_{\,a}$$

$$\boxed{}{}^{\,i}_{\mu\;a} = \frac{d}{dt}\,\boxed{}{}^{\,i}_{\mu\;a} = \frac{d}{dt}\;{}^{x}_{\mu}\cap{}^{\nu}_{t}\;\overbrace{\boxed{}{}^{\,i}_{\nu\;a} + \boxed{}{}^{\,i}_{j\;a}\;{}^{}_{\nu}{}^{j}_{b}}$$

$$= {}^{x}_{\mu}\mathsf{b}{}^{\nu}_{\;\nu}{}^{\,i}_{a} + {}_{\mu}\delta^{\nu}\,\overbrace{\boxed{}{}^{\,i}_{\nu\;a} + \boxed{}{}^{\,i}_{j\;a}{}^{\,j}_{\nu\;b}} = {}^{x}_{\mu}\mathsf{b}{}^{\nu}_{\;\nu}{}^{\,i}_{a} + \boxed{}{}^{\,i}_{\mu\;a} + \boxed{}{}^{\,i}_{j\;a}{}^{\,j}_{\mu\;b}$$