

$$\begin{aligned}
& \mathbf{D} \left[ \frac{1}{\sqrt{(\mathbf{xk} - \mathbf{xj})^2 + (\mathbf{zk}[\mathbf{z}] - \mathbf{zj}[\mathbf{z}])^2}} - \frac{1}{\sqrt{(\mathbf{xk} - \mathbf{xj})^2 + (\mathbf{zk}[\mathbf{z}] + \mathbf{zj}[\mathbf{z}])^2}}, \{\mathbf{z}, 1\} \right] /. \\
& \{\mathbf{zj}'[\mathbf{z}] \rightarrow 1, \mathbf{zk}'[\mathbf{z}] \rightarrow 1\} \\
Out[\ast] = & \frac{2 (\mathbf{zj}[\mathbf{z}] + \mathbf{zk}[\mathbf{z}])}{\left( (-\mathbf{xj} + \mathbf{xk})^2 + (\mathbf{zj}[\mathbf{z}] + \mathbf{zk}[\mathbf{z}])^2 \right)^{3/2}}
\end{aligned}$$

$$\begin{aligned}
& \mathbf{D} \left[ \frac{1}{\sqrt{(\mathbf{xk} - \mathbf{xj})^2 + (\mathbf{zk}[\mathbf{z}] - \mathbf{zj}[\mathbf{z}])^2}} - \frac{1}{\sqrt{(\mathbf{xk} - \mathbf{xj})^2 + (\mathbf{zk}[\mathbf{z}] + \mathbf{zj}[\mathbf{z}])^2}}, \{\mathbf{z}, 2\} \right] /. \\
& \{\mathbf{zj}'[\mathbf{z}] \rightarrow 1, \mathbf{zk}'[\mathbf{z}] \rightarrow 1, \mathbf{zj}''[\mathbf{z}] \rightarrow 0, \mathbf{zk}''[\mathbf{z}] \rightarrow 0\} \\
Out[\ast] = & -\frac{12 (\mathbf{zj}[\mathbf{z}] + \mathbf{zk}[\mathbf{z}])^2}{\left( (-\mathbf{xj} + \mathbf{xk})^2 + (\mathbf{zj}[\mathbf{z}] + \mathbf{zk}[\mathbf{z}])^2 \right)^{5/2}} + \frac{4}{\left( (-\mathbf{xj} + \mathbf{xk})^2 + (\mathbf{zj}[\mathbf{z}] + \mathbf{zk}[\mathbf{z}])^2 \right)^{3/2}}
\end{aligned}$$