

① Trilinear Interpolation

In Z , $z = \frac{4}{5}$

$$f(0, 0, \frac{4}{5}) = \frac{1}{5}(3) + \frac{4}{5}(2) = \frac{11}{5}$$

$$f(1, 0, \frac{4}{5}) = \frac{1}{5}(19) + \frac{4}{5}(10) = \frac{59}{5}$$

$$f(0, 1, \frac{4}{5}) = \frac{1}{5}(4) + \frac{4}{5}(24) = \frac{100}{5}$$

$$f(1, 1, \frac{4}{5}) = \frac{1}{5}(8) + \frac{4}{5}(0) = \frac{8}{5}$$

In X , $x = \frac{1}{4}$

$$\begin{aligned} f(\frac{1}{4}, 0, \frac{4}{5}) &= \frac{3}{4}(\frac{11}{5}) + \frac{1}{4}(\frac{59}{5}) \\ &= \frac{92}{20} \end{aligned}$$

$$\begin{aligned} f(\frac{1}{4}, 1, \frac{4}{5}) &= \frac{3}{4}(\frac{100}{5}) + \frac{1}{4}(\frac{8}{5}) \\ &= \frac{308}{20} \end{aligned}$$

In Y , $y = \frac{1}{2}$

$$\begin{aligned} f(\frac{1}{4}, \frac{1}{2}, \frac{4}{5}) &= \frac{1}{2}(\frac{92}{20}) + \frac{1}{2}(\frac{308}{20}) \\ &= \frac{400}{40} = \boxed{10} \end{aligned}$$

② Barycentric Coordinates

C



③

Structured Grid

$$4 \left((n+1)^3 \cdot 3 + (n+1)^3 \cdot 1 + 3 \right)$$

cells per axis

scalars per vertex

coordinates per vertex

Number of vertices

Bytes per number