

Transient heat conduction solutions

$$\Theta = \operatorname{erf} \left(\frac{X}{2\sqrt{\tau}} \right) \quad \text{Conduction into a semi-infinite medium from the surface at a fixed temperature}$$

$$\Theta = 1 - \frac{4}{\pi} \sum \frac{(-1)^n}{2n+1} \exp \left[\frac{(2n+1)^2 \pi^2}{4} \tau \right] \cos \left[\frac{(2n+1)\pi}{2} X \right]$$

Conduction into a plate, both surfaces at a fixed temperature

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