# 1-D UnSteady State Heat Conduction using Numerical Method

**EXPERIMENTAL SOLUTION**

| T1 | T2 | T3 | T4 | T5 | T6 |
|---|---|---|---|---|---|
| 46.1 | 44.1 | 42.7 | 40.8 | 39.5 | 37.3 |

**NUMERICAL METHOD**

| T1 | T2 | T3 | T4 | T5 | T6 |
|---|---|---|---|---|---|
| 46.1 | 44.34 | 42.579 | 40.819 | 39.06 | 37.3 |

| | |
|---|---|
| h | 0.166666667 |
| deltaT | 50 |
| K/(Cp*rho) | 1.11E-04 |

| TIME | T1 | T2 | T3 | T4 | T5 | T6 |
|---|---|---|---|---|---|---|
| 0 | 46.1 | 40.000 | 40.000 | 40.000 | 40.000 | 37.3 |
| 50 | 46.1 | 41.219 | 40.000 | 40.000 | 39.461 | 37.3 |
| 100 | 46.1 | 41.951 | 40.244 | 39.892 | 39.137 | 37.3 |
| 150 | 46.1 | 42.439 | 40.514 | 39.811 | 38.921 | 37.3 |
| 200 | 46.1 | 42.786 | 40.758 | 39.774 | 38.775 | 37.3 |
| 250 | 46.1 | 43.043 | 40.967 | 39.771 | 38.680 | 37.3 |
| 300 | 46.1 | 43.239 | 41.143 | 39.792 | 38.622 | 37.3 |
| 350 | 46.1 | 43.392 | 41.292 | 39.828 | 38.592 | 37.3 |
| 400 | 46.1 | 43.513 | 41.419 | 39.873 | 38.581 | 37.3 |
| 450 | 46.1 | 43.612 | 41.528 | 39.924 | 38.583 | 37.3 |
| 500 | 46.1 | 43.693 | 41.624 | 39.977 | 38.595 | 37.3 |
| 550 | 46.1 | 43.760 | 41.708 | 40.030 | 38.612 | 37.3 |
| 600 | 46.1 | 43.818 | 41.783 | 40.082 | 38.633 | 37.3 |
| 650 | 46.1 | 43.867 | 41.850 | 40.132 | 38.656 | 37.3 |
| 700 | 46.1 | 43.910 | 41.910 | 40.180 | 38.680 | 37.3 |
| 750 | 46.1 | 43.948 | 41.964 | 40.226 | 38.704 | 37.3 |
| 800 | 46.1 | 43.982 | 42.013 | 40.269 | 38.728 | 37.3 |
| 850 | 46.1 | 44.011 | 42.058 | 40.310 | 38.750 | 37.3 |
| 900 | 46.1 | 44.038 | 42.099 | 40.347 | 38.772 | 37.3 |
| 950 | 46.1 | 44.063 | 42.136 | 40.383 | 38.793 | 37.3 |
| 1000 | 46.1 | 44.085 | 42.171 | 40.415 | 38.812 | 37.3 |
| 1050 | 46.1 | 44.105 | 42.203 | 40.446 | 38.830 | 37.3 |
| 1100 | 46.1 | 44.124 | 42.232 | 40.474 | 38.847 | 37.3 |
| 1150 | 46.1 | 44.140 | 42.259 | 40.500 | 38.863 | 37.3 |
| 1200 | 46.1 | 44.156 | 42.283 | 40.524 | 38.878 | 37.3 |
| 1250 | 46.1 | 44.170 | 42.306 | 40.547 | 38.892 | 37.3 |
| 1300 | 46.1 | 44.183 | 42.327 | 40.568 | 38.904 | 37.3 |
| 1350 | 46.1 | 44.195 | 42.346 | 40.587 | 38.916 | 37.3 |
| 1400 | 46.1 | 44.207 | 42.364 | 40.605 | 38.927 | 37.3 |
| 1450 | 46.1 | 44.217 | 42.381 | 40.621 | 38.937 | 37.3 |
| 1500 | 46.1 | 44.226 | 42.396 | 40.636 | 38.946 | 37.3 |
| 1550 | 46.1 | 44.235 | 42.410 | 40.650 | 38.955 | 37.3 |
| 1600 | 46.1 | 44.243 | 42.423 | 40.663 | 38.963 | 37.3 |
| 1650 | 46.1 | 44.250 | 42.435 | 40.675 | 38.970 | 37.3 |
| 1700 | 46.1 | 44.257 | 42.446 | 40.686 | 38.977 | 37.3 |
| 1750 | 46.1 | 44.264 | 42.456 | 40.696 | 38.984 | 37.3 |
| 1800 | 46.1 | 44.269 | 42.466 | 40.706 | 38.989 | 37.3 |
| 1850 | 46.1 | 44.275 | 42.474 | 40.714 | 38.995 | 37.3 |
| 1900 | 46.1 | 44.280 | 42.483 | 40.723 | 39.000 | 37.3 |
| 1950 | 46.1 | 44.284 | 42.490 | 40.730 | 39.004 | 37.3 |
| 2000 | 46.1 | 44.289 | 42.497 | 40.737 | 39.009 | 37.3 |
| 2050 | 46.1 | 44.293 | 42.503 | 40.743 | 39.013 | 37.3 |
| 2100 | 46.1 | 44.296 | 42.509 | 40.749 | 39.016 | 37.3 |
| 2150 | 46.1 | 44.299 | 42.514 | 40.754 | 39.020 | 37.3 |
| 2200 | 46.1 | 44.303 | 42.519 | 40.759 | 39.023 | 37.3 |
| 2250 | 46.1 | 44.305 | 42.524 | 40.764 | 39.025 | 37.3 |
| 2300 | 46.1 | 44.308 | 42.528 | 40.768 | 39.028 | 37.3 |
| 2350 | 46.1 | 44.311 | 42.532 | 40.772 | 39.031 | 37.3 |
| 2400 | 46.1 | 44.313 | 42.536 | 40.776 | 39.033 | 37.3 |
| 2450 | 46.1 | 44.315 | 42.539 | 40.779 | 39.035 | 37.3 |
| 2500 | 46.1 | 44.317 | 42.542 | 40.782 | 39.037 | 37.3 |
| 2550 | 46.1 | 44.319 | 42.545 | 40.785 | 39.039 | 37.3 |
| 2600 | 46.1 | 44.320 | 42.548 | 40.788 | 39.040 | 37.3 |
| 2650 | 46.1 | 44.322 | 42.550 | 40.790 | 39.042 | 37.3 |
| 2700 | 46.1 | 44.323 | 42.553 | 40.793 | 39.043 | 37.3 |
| 2750 | 46.1 | 44.324 | 42.555 | 40.795 | 39.044 | 37.3 |
| 2800 | 46.1 | 44.326 | 42.557 | 40.797 | 39.046 | 37.3 |
| 2850 | 46.1 | 44.327 | 42.558 | 40.798 | 39.047 | 37.3 |
| 2900 | 46.1 | 44.328 | 42.560 | 40.800 | 39.048 | 37.3 |
| 2950 | 46.1 | 44.329 | 42.562 | 40.802 | 39.049 | 37.3 |
| 3000 | 46.1 | 44.329 | 42.563 | 40.803 | 39.049 | 37.3 |
| 3050 | 46.1 | 44.330 | 42.564 | 40.804 | 39.050 | 37.3 |
| 3100 | 46.1 | 44.331 | 42.566 | 40.806 | 39.051 | 37.3 |
| 3150 | 46.1 | 44.332 | 42.567 | 40.807 | 39.052 | 37.3 |
| 3200 | 46.1 | 44.332 | 42.568 | 40.808 | 39.052 | 37.3 |
| 3250 | 46.1 | 44.333 | 42.569 | 40.809 | 39.053 | 37.3 |
| 3300 | 46.1 | 44.333 | 42.569 | 40.809 | 39.053 | 37.3 |
| 3350 | 46.1 | 44.334 | 42.570 | 40.810 | 39.054 | 37.3 |
| 3400 | 46.1 | 44.334 | 42.571 | 40.811 | 39.054 | 37.3 |
| 3450 | 46.1 | 44.335 | 42.572 | 40.812 | 39.055 | 37.3 |
| 3500 | 46.1 | 44.335 | 42.572 | 40.812 | 39.055 | 37.3 |
| 3550 | 46.1 | 44.336 | 42.573 | 40.813 | 39.056 | 37.3 |
| 3600 | 46.1 | 44.336 | 42.573 | 40.813 | 39.056 | 37.3 |
| 3650 | 46.1 | 44.336 | 42.574 | 40.814 | 39.056 | 37.3 |
| 3700 | 46.1 | 44.337 | 42.574 | 40.814 | 39.057 | 37.3 |
| 3750 | 46.1 | 44.337 | 42.575 | 40.815 | 39.057 | 37.3 |
| 3800 | 46.1 | 44.337 | 42.575 | 40.815 | 39.057 | 37.3 |
| 3850 | 46.1 | 44.337 | 42.576 | 40.816 | 39.057 | 37.3 |
| 3900 | 46.1 | 44.337 | 42.576 | 40.816 | 39.057 | 37.3 |
| 3950 | 46.1 | 44.338 | 42.576 | 40.816 | 39.058 | 37.3 |
| 4000 | 46.1 | 44.338 | 42.577 | 40.817 | 39.058 | 37.3 |
| 4050 | 46.1 | 44.338 | 42.577 | 40.817 | 39.058 | 37.3 |
| 4100 | 46.1 | 44.338 | 42.577 | 40.817 | 39.058 | 37.3 |
| 4150 | 46.1 | 44.338 | 42.577 | 40.817 | 39.058 | 37.3 |
| 4200 | 46.1 | 44.338 | 42.577 | 40.817 | 39.058 | 37.3 |
| 4250 | 46.1 | 44.339 | 42.578 | 40.818 | 39.059 | 37.3 |
| 4300 | 46.1 | 44.339 | 42.578 | 40.818 | 39.059 | 37.3 |
| 4350 | 46.1 | 44.339 | 42.578 | 40.818 | 39.059 | 37.3 |
| 4400 | 46.1 | 44.339 | 42.578 | 40.818 | 39.059 | 37.3 |
| 4450 | 46.1 | 44.339 | 42.578 | 40.818 | 39.059 | 37.3 |
| 4500 | 46.1 | 44.339 | 42.578 | 40.818 | 39.059 | 37.3 |
| 4550 | 46.1 | 44.339 | 42.579 | 40.819 | 39.059 | 37.3 |
| 4600 | 46.1 | 44.339 | 42.579 | 40.819 | 39.059 | 37.3 |
| 4650 | 46.1 | 44.339 | 42.579 | 40.819 | 39.059 | 37.3 |
| 4700 | 46.1 | 44.339 | 42.579 | 40.819 | 39.059 | 37.3 |
| 4750 | 46.1 | 44.339 | 42.579 | 40.819 | 39.059 | 37.3 |
| 4800 | 46.1 | 44.339 | 42.579 | 40.819 | 39.059 | 37.3 |
| 4850 | 46.1 | 44.339 | 42.579 | 40.819 | 39.059 | 37.3 |
| 4900 | 46.1 | 44.339 | 42.579 | 40.819 | 39.059 | 37.3 |
| 4950 | 46.1 | 44.340 | 42.579 | 40.819 | 39.060 | 37.3 |
| 5000 | 46.1 | 44.340 | 42.579 | 40.819 | 39.060 | 37.3 |