

**Governing Equation**

For, *two-dimensional, steady state, conductive* heat transfer;

**Parameters**

**Discretisation**

Using a uniform grid of ,

Now, over a control volume, the governing equation:

For node 1, it can be noted that,

Thus, equation 1 becomes

So that,

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Where

and since

For nodes 2 and 3, it can be noted that,

Thus, equation 1 becomes

So that,

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For node 4, it can be noted that,

Thus, equation 1 becomes

So that,

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For node 5, it can be noted that,

Thus, equation 1 becomes

So that,

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For nodes 6 and 7,equation 1 becomes

So that,

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For node 8, equation 1 becomes

So that,

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For node 9, it can be noted that,

Thus, equation 1 becomes

So that,

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For nodes 10 and 11, it can be noted that,

Thus, equation 1 becomes

So that,

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For node 12, it can be noted that,

Thus, equation 1 becomes

So that,

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Temperatures at nodes 1-12 can be evaluated by solving the following equations, where the coefficient matrix is formed from noting the respective coefficients in equations 2-13;