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**Algorithm 1** Tridiagonal matrix algorithm (Thomas algorithm)

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1: function THOMAS(a, b, c, d) ▷ Vectors
2:    $\hat{c}_1 \leftarrow \frac{c_1}{b_1}$ 
3:    $\hat{d}_1 \leftarrow \frac{d_1}{b_1}$ 
4:   for  $i = 2, 3, \dots, n - 1$  do ▷ Forward sweep
5:      $\hat{c}_i \leftarrow \frac{c_i}{b_i - a_i \hat{c}_{i-1}}$ 
6:      $\hat{d}_i \leftarrow \frac{d_i - a_i \hat{d}_{i-1}}{b_i - a_i \hat{c}_{i-1}}$ 
7:    $x_n \leftarrow \hat{d}_n$ 
8:   for  $i = n - 1, n - 2, \dots, 1$  do ▷ Backwards substitution
9:      $x_i \leftarrow \hat{d}_i - \hat{c}_i x_{i+1}$ 
10:  return x
```

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