Errata

Understanding and Implementing the Finite Element Method
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(SIAM 2006)

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Note: Positive line numbers start at the top of the page, negative line numbers start at the bottom.

1. Page 90, Line -1: The integral on the right-hand side is missing a factor of $|\det(J(u))|$. The equation should read
\[
\int_Q \kappa(z) \nabla \phi_i(z) \cdot \nabla \phi_j(z) \, dz = \int_{S_R} \kappa(F(u)) \left( (J(u)^{-T} \nabla \gamma_i(u)) \cdot (J(u)^{-T} \nabla \gamma_j(u)) \right) |\det(J(u))| \, du.
\]

2. Page 167, Algorithm 7.1:
   - Line 10: T.Edges(eptr(2,2)) should be T.Edges(eptr(2),2)
   - Line 12: T.Edges(eptr(2,1)) should be T.Edges(eptr(2),1)

3. Page 172, Algorithm 7.4: The last line should read “Add $-\nabla G \cdot \nabla \phi, I$ to $F(ptrs(r))$.”

4. Page 172, Algorithm 7.5:
   - Line 10: nonzero should be negative

5. Page 225, Chapter 10: This chapter fails to give any suggestions for further reading about direct methods for sparse systems. An up-to-date treatment that just appeared is Direct Methods for Sparse Linear Systems by Timothy A. Davis (SIAM, 2006).

6. Page 334, Section 15.2: The explicit residual indicator described in this section is due to Ainsworth and Oden (see Section 2.2 of A Posteriori Error Estimation in Finite Element Analysis by Mark Ainsworth and J. Tinsley Oden, reference [2] in the bibliography). The citation was inadvertently omitted.
7. Page 338, Line -4: “three-point element residual estimator” should be “explicit residual estimator.”