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The resistance functions that relate the forces, couples, and stresslets exerted on ambient fluid by two unequal rigid spheres in low Reynolds number flow are calculated for the case in which the spheres are immersed in an ambient linear flow. In conjunction with earlier works, this paper completes the tabulation of all of the two-sphere resistance functions at present needed in investigations of the mechanics of suspensions. Each function is calculated first as a series in inverse powers of the center-to-center separation, and then, in order to handle the singular behavior caused by lubrication forces, the asymptotic form which the function takes when the spheres are close is combined with the series expansion into a single expression valid for all separations of the spheres.1. S. Kim and S. J. Karrla, *Microdynamics: Principles and Selected Applications* (Butterworth-Heinemann, London, 1991). Google Scholar2. L. Durlofsky, J. F. Brady, and G. 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