Zeroes and Integrals of Bessel Functions

n	0	1	2	3
$\alpha_n \equiv \alpha_{n0}$	2.4048	5.5201	8.6537	11.7915
$\int_0^1 [J_0(\alpha_n r)]^2 r\ dr$	0.1348	0.0579	0.0368	0.0270
$\int_0^1 J_0(\alpha_n r) r\ dr$	0.2159	-0.0616	0.0314	-0.0197
$\int_0^1 J_0(\alpha_n r) r^2\ dr$	0.1102	-0.0656	0.0294	-0.0202
$\int_0^1 J_0(\alpha_n r) r^3\ dr$	0.0666	-0.0535	0.0297	-0.0191
$\int_0^1 J_0(\alpha_n r) \sin(\pi r) r\ dr$	0.1689	-0.0466	-0.0043	-0.0027
$\int_0^1 J_0(\alpha_n r) \cos(\pi r/2) r\ dr$	0.1414	-0.0036	0.0007	-0.0002
α_{n1}	3.8317	7.0156	10.1735	13.3237
$\int_0^1 [J_1(\alpha_{n1} r)]^2 r\ dr$	0.0811	0.0450	0.0312	0.0238
$\int_0^1 J_1(\alpha_{n1} r) r\ dr$	0.1795	-0.0233	0.0344	-0.0108
$\int_0^1 J_1(\alpha_{n1} r) r^2\ dr$	0.1051	-0.0428	0.0245	-0.0164
$\int_0^1 J_1(\alpha_{n1} r) r^3\ dr$	0.0684	-0.0414	0.0235	-0.0162
$\int_0^1 J_1(\alpha_{n1} r) \sin(\pi r) r\ dr$	0.1423	-0.0040	0.0009	-0.0003
$\int_0^1 J_1(\alpha_{n1} r) \cos(\pi r/2) r\ dr$	0.1036	0.0205	0.0104	0.0056