- Imposing Dirichlet bc at the left boundary and Neumann at the right;
- Considering $\epsilon = 0$;
- Type II fluxes ("non-conservative").

Table 1: Numerical results of pure diffusion for $\phi(x) = \exp(x)$, $\kappa(x) = 1$, and $u(x) = 0$ (only d).

	I	cond(A)	$A^{-1} \geq 0$	$E_{c,1}$	$O_{c,1}$	E_1	O_1	E_∞	O_∞
	20	6.45E+02	✓	1.45E−03	—	1.21E−03	—	1.40E−03	—
$\mathbb{P}_1$	30	1.46E+03	✓	6.37E−04	2.04	5.34E−04	2.01	6.23E−04	2.00
	40	2.59E+03	✓	3.55E−04	2.03	3.00E−04	2.01	3.50E−04	2.00
	20	4.42E+02	✓	2.77E−04	—	4.65E−04	—	1.11E−03	—
$\mathbb{P}_2$	30	9.94E+02	✓	8.34E−05	2.96	2.19E−04	1.86	5.22E−04	1.85
	40	1.77E+03	✓	3.55E−05	2.97	1.26E−04	1.90	3.02E−04	1.90
	20	8.57E+02	✓	5.36E−06	—	2.77E−07	—	1.24E−06	—
$\mathbb{P}_3$	30	1.94E+03	✓	1.06E−06	4.00	5.04E−08	4.20	2.53E−07	3.92
	40	3.45E+03	✓	3.35E−07	4.00	1.53E−08	4.16	8.13E−08	3.94
	20	7.51E+02	✓	4.91E−07	—	1.98E−07	—	4.56E−07	—
$\mathbb{P}_4$	30	1.69E+03	✓	6.52E−08	4.98	4.43E−08	3.69	1.03E−07	3.68
	40	3.00E+03	✓	1.55E−08	4.98	1.48E−08	3.81	3.45E−08	3.79
	20	1.23E+03	✓	1.03E−08	—	1.24E−09	—	1.64E−09	—
$\mathbb{P}_5$	30	2.76E+03	✓	9.04E−10	5.99	1.05E−10	6.09	1.61E−10	5.73
	40	4.91E+03	✓	1.61E−10	5.99	1.83E−11	6.08	3.02E−11	5.81

Table 2: Numerical results of pure diffusion for $\phi(x) = \exp(x)$, $\kappa(x) = 1$, and $u(x) = 0$ (Neumann bc with $d + 1$ and the other cells with d).

	I	cond(A)	$A^{-1} \geq 0$	$E_{c,1}$	$O_{c,1}$	E_1	O_1	E_∞	O_∞
	20	6.45E+02	✓	1.45E−03	—	1.21E−03	—	1.40E−03	—
$\mathbb{P}_1$	30	1.46E+03	✓	6.37E−04	2.04	5.34E−04	2.01	6.23E−04	2.00
	40	2.59E+03	✓	3.55E−04	2.03	3.00E−04	2.01	3.50E−04	2.00
	20	4.42E+02	✓	2.77E−04	—	4.65E−04	—	1.11E−03	—
$\mathbb{P}_2$	30	9.94E+02	✓	8.34E−05	2.96	2.19E−04	1.86	5.22E−04	1.85
	40	1.77E+03	✓	3.55E−05	2.97	1.26E−04	1.90	3.02E−04	1.90
	20	8.57E+02	✓	5.36E−06	—	2.77E−07	—	1.24E−06	—
$\mathbb{P}_3$	30	1.94E+03	✓	1.06E−06	4.00	5.04E−08	4.20	2.53E−07	3.92
	40	3.45E+03	✓	3.35E−07	4.00	1.53E−08	4.16	8.13E−08	3.94
	20	7.51E+02	✓	4.91E−07	—	1.98E−07	—	4.56E−07	—
$\mathbb{P}_4$	30	1.69E+03	✓	6.52E−08	4.98	4.43E−08	3.69	1.03E−07	3.68
	40	3.00E+03	✓	1.55E−08	4.98	1.48E−08	3.81	3.45E−08	3.79
	20	1.23E+03	✓	1.03E−08	—	1.24E−09	—	1.64E−09	—
$\mathbb{P}_5$	30	2.76E+03	✓	9.04E−10	5.99	1.05E−10	6.09	1.61E−10	5.73
	40	4.91E+03	✓	1.61E−10	5.99	1.83E−11	6.08	3.02E−11	5.81

Table 3: Numerical results of pure diffusion for $\phi(x) = \exp(x)$, $\kappa(x) = 1$, and $u(x) = 0$ (Neumann bc and 1 cell with $d+1$ and the other cells with d).

	I	cond(A)	$A^{-1} \geq 0$	$E_{c,1}$	$O_{c,1}$	E_1	O_1	E_∞	O_∞
	20	6.45E+02	✓	1.45E−03	—	1.21E−03	—	1.40E−03	—
$\mathbb{P}_1$	30	1.46E+03	✓	6.37E−04	2.04	5.34E−04	2.01	6.23E−04	2.00
	40	2.59E+03	✓	3.55E−04	2.03	3.00E−04	2.01	3.50E−04	2.00
	20	4.42E+02	✓	2.77E−04	—	4.64E−04	—	1.11E−03	—
$\mathbb{P}_2$	30	9.94E+02	✓	8.34E−05	2.96	2.19E−04	1.86	5.24E−04	1.85
	40	1.77E+03	✓	3.55E−05	2.97	1.26E−04	1.90	3.03E−04	1.90
	20	8.57E+02	✓	7.55E−06	—	3.35E−07	—	2.50E−06	—
$\mathbb{P}_3$	30	1.94E+03	✓	1.35E−06	4.24	5.57E−08	4.43	4.23E−07	4.38
	40	3.45E+03	✓	4.06E−07	4.19	1.62E−08	4.29	1.22E−07	4.32
	20	7.51E+02	✓	3.20E−07	—	2.06E−07	—	4.96E−07	—
$\mathbb{P}_4$	30	1.69E+03	✓	4.17E−08	5.02	4.50E−08	3.75	1.08E−07	3.75
	40	3.00E+03	✓	9.86E−09	5.01	1.49E−08	3.84	3.59E−08	3.84
	20	1.23E+03	✓	3.98E−08	—	2.15E−09	—	2.08E−08	—
$\mathbb{P}_5$	30	2.76E+03	✓	2.52E−09	6.81	1.39E−10	6.76	1.22E−09	7.00
	40	4.91E+03	✓	3.71E−10	6.66	2.15E−11	6.48	1.67E−10	6.91

Table 4: Numerical results of pure diffusion for $\phi(x) = \exp(x)$, $\kappa(x) = 1$, and $u(x) = 0$ (Neumann bc and 2 cells with $d+1$ and the other cells with d).

	I	cond(A)	$A^{-1} \geq 0$	$E_{c,1}$	$O_{c,1}$	E_1	O_1	E_∞	O_∞
	20	6.45E+02	✓	1.45E−03	—	1.21E−03	—	1.40E−03	—
$\mathbb{P}_1$	30	1.46E+03	✓	6.37E−04	2.04	5.34E−04	2.01	6.23E−04	2.00
	40	2.59E+03	✓	3.55E−04	2.03	3.00E−04	2.01	3.50E−04	2.00
	20	4.96E+02	✓	2.70E−04	—	4.58E−04	—	1.03E−03	—
$\mathbb{P}_2$	30	1.11E+03	✓	8.20E−05	2.94	2.17E−04	1.84	4.98E−04	1.78
	40	1.98E+03	✓	3.50E−05	2.96	1.26E−04	1.89	2.92E−04	1.86
	20	8.57E+02	✓	7.55E−06	—	3.35E−07	—	2.50E−06	—
$\mathbb{P}_3$	30	1.94E+03	✓	1.35E−06	4.24	5.57E−08	4.43	4.23E−07	4.38
	40	3.45E+03	✓	4.06E−07	4.19	1.62E−08	4.29	1.22E−07	4.32
	20	7.51E+02	✓	3.10E−07	—	2.06E−07	—	4.93E−07	—
$\mathbb{P}_4$	30	1.69E+03	✓	4.01E−08	5.04	4.51E−08	3.75	1.08E−07	3.75
	40	3.00E+03	✓	9.44E−09	5.03	1.49E−08	3.84	3.58E−08	3.84
	20	1.23E+03	✓	4.12E−08	—	2.18E−09	—	2.06E−08	—
$\mathbb{P}_5$	30	2.76E+03	✓	2.61E−09	6.80	1.40E−10	6.77	1.21E−09	7.00
	40	4.91E+03	✓	3.84E−10	6.67	2.17E−11	6.49	1.65E−10	6.91

Table 5: Numerical results of pure diffusion for $\phi(x) = \exp(x)$, $\kappa(x) = 1$, and $u(x) = 0$ (Neumann bc and 3 cells with $d+1$ and the other cells with d).

	I	cond(A)	$A^{-1} \geq 0$	$E_{c,1}$	$O_{c,1}$	E_1	O_1	E_∞	O_∞
	20	6.45E+02	✓	1.45E−03	—	1.21E−03	—	1.40E−03	—
$\mathbb{P}_1$	30	1.46E+03	✓	6.37E−04	2.04	5.34E−04	2.01	6.23E−04	2.00
	40	2.59E+03	✓	3.55E−04	2.03	3.00E−04	2.01	3.50E−04	2.00
	20	6.39E+02	✓	2.62E−04	—	4.46E−04	—	9.26E−04	—
$\mathbb{P}_2$	30	1.44E+03	✓	8.02E−05	2.92	2.15E−04	1.80	4.67E−04	1.69
	40	2.56E+03	✓	3.44E−05	2.94	1.25E−04	1.88	2.79E−04	1.80
	20	8.57E+02	✓	7.55E−06	—	3.35E−07	—	2.50E−06	—
$\mathbb{P}_3$	30	1.94E+03	✓	1.35E−06	4.24	5.57E−08	4.43	4.23E−07	4.38
	40	3.45E+03	✓	4.06E−07	4.19	1.62E−08	4.29	1.22E−07	4.32
	20	7.51E+02	✓	3.07E−07	—	1.98E−07	—	4.21E−07	—
$\mathbb{P}_4$	30	1.69E+03	✓	3.98E−08	5.04	4.43E−08	3.69	9.79E−08	3.60
	40	3.00E+03	✓	9.38E−09	5.02	1.48E−08	3.81	3.33E−08	3.75
	20	1.23E+03	✓	4.12E−08	—	2.18E−09	—	2.06E−08	—
$\mathbb{P}_5$	30	2.76E+03	✓	2.61E−09	6.80	1.40E−10	6.77	1.21E−09	7.00
	40	4.91E+03	✓	3.84E−10	6.67	2.17E−11	6.49	1.65E−10	6.91

Table 6: Numerical results of pure diffusion for $\phi(x) = \exp(x)$, $\kappa(x) = 1$, and $u(x) = 0$ (Neumann bc and 4 cells with $d+1$ and the other cells with d).

	I	cond(A)	$A^{-1} \geq 0$	$E_{c,1}$	$O_{c,1}$	E_1	O_1	E_∞	O_∞
	20	6.45E+02	✓	1.45E−03	—	1.21E−03	—	1.40E−03	—
$\mathbb{P}_1$	30	1.46E+03	✓	6.37E−04	2.04	5.34E−04	2.01	6.23E−04	2.00
	40	2.59E+03	✓	3.55E−04	2.03	3.00E−04	2.01	3.50E−04	2.00
	20	7.22E+02	✓	2.53E−04	—	4.30E−04	—	8.39E−04	—
$\mathbb{P}_2$	30	1.62E+03	✓	7.84E−05	2.89	2.11E−04	1.75	4.39E−04	1.59
	40	2.88E+03	✓	3.38E−05	2.92	1.24E−04	1.85	2.67E−04	1.74
	20	8.57E+02	✓	7.55E−06	—	3.35E−07	—	2.50E−06	—
$\mathbb{P}_3$	30	1.94E+03	✓	1.35E−06	4.24	5.57E−08	4.43	4.23E−07	4.38
	40	3.45E+03	✓	4.06E−07	4.19	1.62E−08	4.29	1.22E−07	4.32
	20	8.28E+02	✓	3.02E−07	—	1.90E−07	—	3.78E−07	—
$\mathbb{P}_4$	30	1.86E+03	✓	3.94E−08	5.03	4.36E−08	3.63	9.18E−08	3.49
	40	3.31E+03	✓	9.31E−09	5.02	1.47E−08	3.78	3.19E−08	3.68
	20	1.23E+03	✓	4.12E−08	—	2.18E−09	—	2.06E−08	—
$\mathbb{P}_5$	30	2.76E+03	✓	2.61E−09	6.80	1.40E−10	6.77	1.21E−09	7.00
	40	4.91E+03	✓	3.84E−10	6.67	2.16E−11	6.49	1.65E−10	6.91

Table 7: Numerical results of pure diffusion for $\phi(x) = \exp(x)$, $\kappa(x) = 1$, and $u(x) = 0$ (Neumann bc and 5 cells with $d+1$ and the other cells with d).

	I	cond(A)	$A^{-1} \geq 0$	$E_{c,1}$	$O_{c,1}$	E_1	O_1	E_∞	O_∞
	20	6.45E+02	✓	1.45E−03	—	1.21E−03	—	1.40E−03	—
$\mathbb{P}_1$	30	1.46E+03	✓	6.37E−04	2.04	5.34E−04	2.01	6.23E−04	2.00
	40	2.59E+03	✓	3.55E−04	2.03	3.00E−04	2.01	3.50E−04	2.00
	20	7.69E+02	✓	2.46E−04	—	4.11E−04	—	7.56E−04	—
$\mathbb{P}_2$	30	1.73E+03	✓	7.67E−05	2.87	2.07E−04	1.69	4.13E−04	1.49
	40	3.07E+03	✓	3.33E−05	2.90	1.23E−04	1.82	2.55E−04	1.68
	20	8.57E+02	✓	7.55E−06	—	3.35E−07	—	2.50E−06	—
$\mathbb{P}_3$	30	1.94E+03	✓	1.35E−06	4.24	5.57E−08	4.43	4.23E−07	4.38
	40	3.45E+03	✓	4.06E−07	4.19	1.62E−08	4.29	1.22E−07	4.32
	20	8.88E+02	✓	2.99E−07	—	1.80E−07	—	3.38E−07	—
$\mathbb{P}_4$	30	2.00E+03	✓	3.90E−08	5.02	4.26E−08	3.55	8.61E−08	3.37
	40	3.55E+03	✓	9.24E−09	5.01	1.45E−08	3.75	3.04E−08	3.62
	20	1.23E+03	✓	4.12E−08	—	2.18E−09	—	2.06E−08	—
$\mathbb{P}_5$	30	2.76E+03	✓	2.61E−09	6.80	1.40E−10	6.77	1.21E−09	7.00
	40	4.91E+03	✓	3.84E−10	6.67	2.17E−11	6.48	1.65E−10	6.92

Table 8: Numerical results of pure diffusion for $\phi(x) = \exp(x)$, $\kappa(x) = 1$, and $u(x) = 0$ (Neumann bc and 6 cells with $d+1$ and the other cells with d).

	I	cond(A)	$A^{-1} \geq 0$	$E_{c,1}$	$O_{c,1}$	E_1	O_1	E_∞	O_∞
	20	6.45E+02	✓	1.45E−03	—	1.21E−03	—	1.40E−03	—
$\mathbb{P}_1$	30	1.46E+03	✓	6.37E−04	2.04	5.34E−04	2.01	6.23E−04	2.00
	40	2.59E+03	✓	3.55E−04	2.03	3.00E−04	2.01	3.50E−04	2.00
	20	7.96E+02	✓	2.38E−04	—	3.89E−04	—	6.78E−04	—
$\mathbb{P}_2$	30	1.79E+03	✓	7.51E−05	2.85	2.03E−04	1.61	3.88E−04	1.38
	40	3.18E+03	✓	3.27E−05	2.89	1.21E−04	1.79	2.44E−04	1.61
	20	8.57E+02	✓	7.55E−06	—	3.35E−07	—	2.50E−06	—
$\mathbb{P}_3$	30	1.94E+03	✓	1.35E−06	4.24	5.57E−08	4.43	4.23E−07	4.38
	40	3.45E+03	✓	4.06E−07	4.19	1.62E−08	4.29	1.22E−07	4.32
	20	9.19E+02	✓	2.95E−07	—	1.69E−07	—	3.00E−07	—
$\mathbb{P}_4$	30	2.07E+03	✓	3.87E−08	5.01	4.15E−08	3.46	8.05E−08	3.24
	40	3.68E+03	✓	9.17E−09	5.00	1.43E−08	3.71	2.90E−08	3.55
	20	1.23E+03	✓	4.12E−08	—	2.18E−09	—	2.06E−08	—
$\mathbb{P}_5$	30	2.76E+03	✓	2.61E−09	6.80	1.40E−10	6.77	1.21E−09	7.00
	40	4.91E+03	✓	3.84E−10	6.67	2.17E−11	6.49	1.65E−10	6.92

Table 9: Numerical results of pure diffusion for $\phi(x) = \exp(x)$, $\kappa(x) = 1$, and $u(x) = 0$ (Neumann bc and 7 cells with $d+1$ and the other cells with d).

	I	cond(A)	$A^{-1} \geq 0$	$E_{c,1}$	$O_{c,1}$	E_1	O_1	E_∞	O_∞
	20	6.45E+02	✓	1.45E−03	—	1.21E−03	—	1.40E−03	—
$\mathbb{P}_1$	30	1.46E+03	✓	6.37E−04	2.04	5.34E−04	2.01	6.23E−04	2.00
	40	2.59E+03	✓	3.55E−04	2.03	3.00E−04	2.01	3.50E−04	2.00
	20	8.14E+02	✓	2.31E−04	—	3.65E−04	—	6.03E−04	—
$\mathbb{P}_2$	30	1.83E+03	✓	7.35E−05	2.82	1.97E−04	1.52	3.63E−04	1.25
	40	3.25E+03	✓	3.22E−05	2.87	1.19E−04	1.74	2.33E−04	1.54
	20	8.57E+02	✓	7.55E−06	—	3.35E−07	—	2.50E−06	—
$\mathbb{P}_3$	30	1.94E+03	✓	1.35E−06	4.24	5.57E−08	4.43	4.23E−07	4.38
	40	3.45E+03	✓	4.06E−07	4.19	1.62E−08	4.29	1.22E−07	4.32
	20	9.36E+02	✓	2.91E−07	—	1.56E−07	—	2.63E−07	—
$\mathbb{P}_4$	30	2.11E+03	✓	3.83E−08	5.00	4.03E−08	3.34	7.51E−08	3.09
	40	3.75E+03	✓	9.10E−09	5.00	1.41E−08	3.66	2.77E−08	3.47
	20	1.23E+03	✓	4.12E−08	—	2.18E−09	—	2.06E−08	—
$\mathbb{P}_5$	30	2.76E+03	✓	2.61E−09	6.80	1.40E−10	6.77	1.21E−09	7.00
	40	4.91E+03	✓	3.84E−10	6.66	2.17E−11	6.48	1.65E−10	6.92

Table 10: Numerical results of pure diffusion for $\phi(x) = \exp(x)$, $\kappa(x) = 1$, and $u(x) = 0$ (Neumann bc and 8 cells with $d+1$ and the other cells with d).

	I	cond(A)	$A^{-1} \geq 0$	$E_{c,1}$	$O_{c,1}$	E_1	O_1	E_∞	O_∞
	20	6.45E+02	✓	1.45E−03	—	1.21E−03	—	1.40E−03	—
$\mathbb{P}_1$	30	1.46E+03	✓	6.37E−04	2.04	5.34E−04	2.01	6.23E−04	2.00
	40	2.59E+03	✓	3.55E−04	2.03	3.00E−04	2.01	3.50E−04	2.00
	20	8.26E+02	✓	2.24E−04	—	3.38E−04	—	5.32E−04	—
$\mathbb{P}_2$	30	1.86E+03	✓	7.19E−05	2.80	1.91E−04	1.40	3.39E−04	1.11
	40	3.30E+03	✓	3.17E−05	2.85	1.17E−04	1.70	2.22E−04	1.47
	20	8.57E+02	✓	7.55E−06	—	3.35E−07	—	2.50E−06	—
$\mathbb{P}_3$	30	1.94E+03	✓	1.35E−06	4.24	5.57E−08	4.43	4.23E−07	4.38
	40	3.45E+03	✓	4.06E−07	4.19	1.62E−08	4.29	1.22E−07	4.32
	20	9.47E+02	✓	2.88E−07	—	1.43E−07	—	2.29E−07	—
$\mathbb{P}_4$	30	2.13E+03	✓	3.80E−08	5.00	3.89E−08	3.20	6.99E−08	2.92
	40	3.79E+03	✓	9.04E−09	4.99	1.38E−08	3.61	2.64E−08	3.39
	20	1.23E+03	✓	4.12E−08	—	2.18E−09	—	2.06E−08	—
$\mathbb{P}_5$	30	2.76E+03	✓	2.61E−09	6.80	1.40E−10	6.77	1.21E−09	7.00
	40	4.91E+03	✓	3.84E−10	6.66	2.17E−11	6.48	1.65E−10	6.92

Table 11: Numerical results of pure diffusion for $\phi(x) = \exp(x)$, $\kappa(x) = 1$, and $u(x) = 0$ (Neumann bc and 9 cells with $d+1$ and the other cells with d).

	I	cond(A)	$A^{-1} \geq 0$	$E_{c,1}$	$O_{c,1}$	E_1	O_1	E_∞	O_∞
	20	6.45E+02	✓	1.45E−03	—	1.21E−03	—	1.40E−03	—
$\mathbb{P}_1$	30	1.46E+03	✓	6.37E−04	2.04	5.34E−04	2.01	6.23E−04	2.00
	40	2.59E+03	✓	3.55E−04	2.03	3.00E−04	2.01	3.50E−04	2.00
	20	8.34E+02	✓	2.18E−04	—	3.09E−04	—	4.64E−04	—
$\mathbb{P}_2$	30	1.87E+03	✓	7.04E−05	2.78	1.85E−04	1.27	3.16E−04	0.95
	40	3.33E+03	✓	3.12E−05	2.84	1.15E−04	1.64	2.12E−04	1.39
	20	8.57E+02	✓	7.55E−06	—	3.35E−07	—	2.50E−06	—
$\mathbb{P}_3$	30	1.94E+03	✓	1.35E−06	4.24	5.57E−08	4.43	4.23E−07	4.38
	40	3.45E+03	✓	4.06E−07	4.19	1.62E−08	4.29	1.22E−07	4.32
	20	9.54E+02	✓	2.85E−07	—	1.28E−07	—	1.96E−07	—
$\mathbb{P}_4$	30	2.15E+03	✓	3.76E−08	4.99	3.74E−08	3.03	6.49E−08	2.72
	40	3.81E+03	✓	8.98E−09	4.98	1.35E−08	3.54	2.51E−08	3.31
	20	1.23E+03	✓	4.12E−08	—	2.18E−09	—	2.06E−08	—
$\mathbb{P}_5$	30	2.76E+03	✓	2.61E−09	6.80	1.40E−10	6.77	1.21E−09	7.00
	40	4.91E+03	✓	3.84E−10	6.66	2.17E−11	6.48	1.65E−10	6.92

Table 12: Numerical results of pure diffusion for $\phi(x) = \exp(x)$, $\kappa(x) = 1$, and $u(x) = 0$ (Neumann bc and 10 cells with $d+1$ and the other cells with d).

	I	cond(A)	$A^{-1} \geq 0$	$E_{c,1}$	$O_{c,1}$	E_1	O_1	E_∞	O_∞
	20	6.45E+02	✓	1.45E−03	—	1.21E−03	—	1.40E−03	—
$\mathbb{P}_1$	30	1.46E+03	✓	6.37E−04	2.04	5.34E−04	2.01	6.23E−04	2.00
	40	2.59E+03	✓	3.55E−04	2.03	3.00E−04	2.01	3.50E−04	2.00
	20	8.40E+02	✓	2.11E−04	—	2.78E−04	—	4.00E−04	—
$\mathbb{P}_2$	30	1.89E+03	✓	6.90E−05	2.76	1.77E−04	1.11	2.93E−04	0.76
	40	3.36E+03	✓	3.07E−05	2.82	1.13E−04	1.58	2.01E−04	1.31
	20	8.57E+02	✓	7.55E−06	—	3.35E−07	—	2.50E−06	—
$\mathbb{P}_3$	30	1.94E+03	✓	1.35E−06	4.24	5.57E−08	4.43	4.23E−07	4.38
	40	3.45E+03	✓	4.06E−07	4.19	1.62E−08	4.29	1.22E−07	4.32
	20	9.59E+02	✓	2.82E−07	—	1.13E−07	—	1.64E−07	—
$\mathbb{P}_4$	30	2.16E+03	✓	3.73E−08	4.99	3.58E−08	2.82	6.00E−08	2.48
	40	3.83E+03	✓	8.91E−09	4.98	1.32E−08	3.47	2.38E−08	3.21
	20	1.23E+03	✓	4.12E−08	—	2.18E−09	—	2.06E−08	—
$\mathbb{P}_5$	30	2.76E+03	✓	2.61E−09	6.80	1.40E−10	6.77	1.21E−09	7.00
	40	4.91E+03	✓	3.84E−10	6.66	2.17E−11	6.48	1.65E−10	6.92

Table 13: Numerical results of pure diffusion for $\phi(x) = \exp(x)$, $\kappa(x) = 1$, and $u(x) = 0$ (Neumann bc and 11 cells with $d+1$ and the other cells with d).

	I	cond(A)	$A^{-1} \geq 0$	$E_{c,1}$	$O_{c,1}$	E_1	O_1	E_∞	O_∞
	20	6.45E+02	✓	1.45E−03	—	1.21E−03	—	1.40E−03	—
$\mathbb{P}_1$	30	1.46E+03	✓	6.37E−04	2.04	5.34E−04	2.01	6.23E−04	2.00
	40	2.59E+03	✓	3.55E−04	2.03	3.00E−04	2.01	3.50E−04	2.00
	20	8.44E+02	✓	2.06E−04	—	2.45E−04	—	3.39E−04	—
$\mathbb{P}_2$	30	1.90E+03	✓	6.76E−05	2.74	1.70E−04	0.91	2.72E−04	0.54
	40	3.37E+03	✓	3.02E−05	2.80	1.10E−04	1.51	1.91E−04	1.22
	20	8.57E+02	✓	7.55E−06	—	3.35E−07	—	2.50E−06	—
$\mathbb{P}_3$	30	1.94E+03	✓	1.35E−06	4.24	5.57E−08	4.43	4.23E−07	4.38
	40	3.45E+03	✓	4.06E−07	4.19	1.62E−08	4.29	1.22E−07	4.32
	20	9.62E+02	✓	2.79E−07	—	9.64E−08	—	1.34E−07	—
$\mathbb{P}_4$	30	2.16E+03	✓	3.70E−08	4.98	3.41E−08	2.56	5.53E−08	2.19
	40	3.85E+03	✓	8.85E−09	4.97	1.29E−08	3.39	2.26E−08	3.11
	20	1.23E+03	✓	4.12E−08	—	2.18E−09	—	2.06E−08	—
$\mathbb{P}_5$	30	2.76E+03	✓	2.61E−09	6.80	1.40E−10	6.77	1.21E−09	7.00
	40	4.91E+03	✓	3.84E−10	6.66	2.17E−11	6.48	1.65E−10	6.92

Table 14: Numerical results of pure diffusion for $\phi(x) = \exp(x)$, $\kappa(x) = 1$, and $u(x) = 0$ (Neumann bc and 12 cells with $d+1$ and the other cells with d).

	I	cond(A)	$A^{-1} \geq 0$	$E_{c,1}$	$O_{c,1}$	E_1	O_1	E_∞	O_∞
	20	6.45E+02	✓	1.45E−03	—	1.21E−03	—	1.40E−03	—
$\mathbb{P}_1$	30	1.46E+03	✓	6.37E−04	2.04	5.34E−04	2.01	6.23E−04	2.00
	40	2.59E+03	✓	3.55E−04	2.03	3.00E−04	2.01	3.50E−04	2.00
	20	8.47E+02	✓	2.00E−04	—	2.12E−04	—	2.81E−04	—
$\mathbb{P}_2$	30	1.91E+03	✓	6.62E−05	2.73	1.62E−04	0.66	2.51E−04	0.28
	40	3.39E+03	✓	2.97E−05	2.79	1.07E−04	1.43	1.82E−04	1.12
	20	8.57E+02	✓	7.55E−06	—	3.35E−07	—	2.50E−06	—
$\mathbb{P}_3$	30	1.94E+03	✓	1.35E−06	4.24	5.57E−08	4.43	4.23E−07	4.38
	40	3.45E+03	✓	4.06E−07	4.19	1.62E−08	4.29	1.22E−07	4.32
	20	9.65E+02	✓	2.76E−07	—	7.95E−08	—	1.06E−07	—
$\mathbb{P}_4$	30	2.17E+03	✓	3.67E−08	4.98	3.23E−08	2.22	5.08E−08	1.82
	40	3.86E+03	✓	8.80E−09	4.97	1.25E−08	3.30	2.14E−08	3.00
	20	1.23E+03	✓	4.12E−08	—	2.18E−09	—	2.06E−08	—
$\mathbb{P}_5$	30	2.76E+03	✓	2.61E−09	6.80	1.40E−10	6.77	1.21E−09	7.00
	40	4.91E+03	✓	3.84E−10	6.66	2.18E−11	6.46	1.65E−10	6.93

Table 15: Numerical results of pure diffusion for $\phi(x) = \exp(x)$, $\kappa(x) = 1$, and $u(x) = 0$ (Neumann bc and 13 cells with $d+1$ and the other cells with d).

	I	cond(A)	$A^{-1} \geq 0$	$E_{c,1}$	$O_{c,1}$	E_1	O_1	E_∞	O_∞
	20	6.45E+02	✓	1.45E−03	—	1.21E−03	—	1.40E−03	—
$\mathbb{P}_1$	30	1.46E+03	✓	6.37E−04	2.04	5.34E−04	2.01	6.23E−04	2.00
	40	2.59E+03	✓	3.55E−04	2.03	3.00E−04	2.01	3.50E−04	2.00
	20	8.50E+02	✓	1.95E−04	—	1.77E−04	—	2.26E−04	—
$\mathbb{P}_2$	30	1.91E+03	✓	6.49E−05	2.71	1.53E−04	0.36	2.31E−04	↑
	40	3.40E+03	✓	2.92E−05	2.77	1.04E−04	1.34	1.72E−04	1.02
	20	8.57E+02	✓	7.55E−06	—	3.35E−07	—	2.50E−06	—
$\mathbb{P}_3$	30	1.94E+03	✓	1.35E−06	4.24	5.57E−08	4.43	4.23E−07	4.38
	40	3.45E+03	✓	4.06E−07	4.19	1.62E−08	4.29	1.22E−07	4.32
	20	9.67E+02	✓	2.73E−07	—	6.22E−08	—	7.92E−08	—
$\mathbb{P}_4$	30	2.18E+03	✓	3.64E−08	4.97	3.04E−08	1.76	4.64E−08	1.32
	40	3.87E+03	✓	8.74E−09	4.96	1.21E−08	3.20	2.03E−08	2.88
	20	1.23E+03	✓	4.12E−08	—	2.18E−09	—	2.06E−08	—
$\mathbb{P}_5$	30	2.76E+03	✓	2.61E−09	6.80	1.40E−10	6.77	1.21E−09	7.00
	40	4.91E+03	✓	3.84E−10	6.66	2.17E−11	6.48	1.65E−10	6.93

Table 16: Numerical results of pure diffusion for $\phi(x) = \exp(x)$, $\kappa(x) = 1$, and $u(x) = 0$ (Neumann bc and 14 cells with $d+1$ and the other cells with d).

	I	cond(A)	$A^{-1} \geq 0$	$E_{c,1}$	$O_{c,1}$	E_1	O_1	E_∞	O_∞
	20	6.45E+02	✓	1.45E−03	—	1.21E−03	—	1.40E−03	—
$\mathbb{P}_1$	30	1.46E+03	✓	6.37E−04	2.04	5.34E−04	2.01	6.23E−04	2.00
	40	2.59E+03	✓	3.55E−04	2.03	3.00E−04	2.01	3.50E−04	2.00
	20	8.52E+02	✓	1.90E−04	—	1.41E−04	—	1.73E−04	—
$\mathbb{P}_2$	30	1.92E+03	✓	6.37E−05	2.69	1.44E−04	↑	2.11E−04	↑
	40	3.41E+03	✓	2.88E−05	2.76	1.01E−04	1.24	1.63E−04	0.90
	20	8.57E+02	✓	7.55E−06	—	3.35E−07	—	2.50E−06	—
$\mathbb{P}_3$	30	1.94E+03	✓	1.35E−06	4.24	5.57E−08	4.43	4.23E−07	4.38
	40	3.45E+03	✓	4.06E−07	4.19	1.62E−08	4.29	1.22E−07	4.32
	20	9.69E+02	✓	2.71E−07	—	4.43E−08	—	5.34E−08	—
$\mathbb{P}_4$	30	2.18E+03	✓	3.62E−08	4.97	2.85E−08	1.09	4.21E−08	0.58
	40	3.87E+03	✓	8.68E−09	4.96	1.17E−08	3.08	1.91E−08	2.75
	20	1.23E+03	✓	4.12E−08	—	2.18E−09	—	2.06E−08	—
$\mathbb{P}_5$	30	2.76E+03	✓	2.61E−09	6.80	1.40E−10	6.77	1.21E−09	7.00
	40	4.91E+03	✓	3.84E−10	6.66	2.18E−11	6.47	1.65E−10	6.93

Table 17: Numerical results of pure diffusion for $\phi(x) = \exp(x)$, $\kappa(x) = 1$, and $u(x) = 0$ (Neumann bc and 15 cells with $d+1$ and the other cells with d).

	I	cond(A)	$A^{-1} \geq 0$	$E_{c,1}$	$O_{c,1}$	E_1	O_1	E_∞	O_∞
	20	6.45E+02	✓	1.45E−03	—	1.21E−03	—	1.40E−03	—
$\mathbb{P}_1$	30	1.46E+03	✓	6.37E−04	2.04	5.34E−04	2.01	6.23E−04	2.00
	40	2.59E+03	✓	3.55E−04	2.03	3.00E−04	2.01	3.50E−04	2.00
	20	8.53E+02	✓	1.85E−04	—	1.05E−04	—	1.23E−04	—
$\mathbb{P}_2$	30	1.92E+03	✓	6.24E−05	2.68	1.35E−04	↑	1.92E−04	↑
	40	3.41E+03	✓	2.83E−05	2.75	9.78E−05	1.12	1.54E−04	0.77
	20	8.57E+02	✓	7.55E−06	—	3.35E−07	—	2.50E−06	—
$\mathbb{P}_3$	30	1.94E+03	✓	1.35E−06	4.24	5.57E−08	4.43	4.23E−07	4.38
	40	3.45E+03	✓	4.06E−07	4.19	1.62E−08	4.29	1.22E−07	4.32
	20	9.70E+02	✓	2.69E−07	—	2.68E−08	—	3.38E−08	—
$\mathbb{P}_4$	30	2.18E+03	✓	3.59E−08	4.96	2.64E−08	0.03	3.80E−08	↑
	40	3.88E+03	✓	8.63E−09	4.95	1.13E−08	2.94	1.80E−08	2.60
	20	1.23E+03	✓	4.12E−08	—	2.18E−09	—	2.06E−08	—
$\mathbb{P}_5$	30	2.76E+03	✓	2.61E−09	6.80	1.40E−10	6.77	1.21E−09	7.00
	40	4.91E+03	✓	3.84E−10	6.66	2.18E−11	6.46	1.65E−10	6.93

Table 18: Numerical results of pure diffusion for $\phi(x) = \exp(x)$, $\kappa(x) = 1$, and $u(x) = 0$ (Neumann bc and 16 cells with $d+1$ and the other cells with d).

	I	cond(A)	$A^{-1} \geq 0$	$E_{c,1}$	$O_{c,1}$	E_1	O_1	E_∞	O_∞
	20	6.45E+02	✓	1.45E−03	—	1.21E−03	—	1.40E−03	—
$\mathbb{P}_1$	30	1.46E+03	✓	6.37E−04	2.04	5.34E−04	2.01	6.23E−04	2.00
	40	2.59E+03	✓	3.55E−04	2.03	3.00E−04	2.01	3.50E−04	2.00
	20	8.55E+02	✓	1.80E−04	—	6.67E−05	—	7.45E−05	—
$\mathbb{P}_2$	30	1.92E+03	✓	6.13E−05	2.66	1.26E−04	↑	1.74E−04	↑
	40	3.42E+03	✓	2.79E−05	2.73	9.44E−05	1.00	1.45E−04	0.63
	20	8.57E+02	✓	7.55E−06	—	3.35E−07	—	2.50E−06	—
$\mathbb{P}_3$	30	1.94E+03	✓	1.35E−06	4.24	5.57E−08	4.43	4.23E−07	4.38
	40	3.45E+03	✓	4.06E−07	4.19	1.62E−08	4.29	1.22E−07	4.32
	20	9.71E+02	✓	2.66E−07	—	8.66E−09	—	3.50E−08	—
$\mathbb{P}_4$	30	2.18E+03	✓	3.56E−08	4.96	2.43E−08	↑	3.40E−08	0.07
	40	3.88E+03	✓	8.57E−09	4.95	1.09E−08	2.79	1.69E−08	2.43
	20	1.23E+03	✓	4.12E−08	—	2.18E−09	—	2.06E−08	—
$\mathbb{P}_5$	30	2.76E+03	✓	2.61E−09	6.80	1.40E−10	6.77	1.21E−09	7.00
	40	4.91E+03	✓	3.84E−10	6.66	2.18E−11	6.45	1.65E−10	6.93

Table 19: Numerical results of pure diffusion for $\phi(x) = \exp(x)$, $\kappa(x) = 1$, and $u(x) = 0$ (Neumann bc and 17 cells with $d+1$ and the other cells with d).

	I	cond(A)	$A^{-1} \geq 0$	$E_{c,1}$	$O_{c,1}$	E_1	O_1	E_∞	O_∞
	20	6.45E+02	✓	1.45E−03	—	1.21E−03	—	1.40E−03	—
$\mathbb{P}_1$	30	1.46E+03	✓	6.37E−04	2.04	5.34E−04	2.01	6.23E−04	2.00
	40	2.59E+03	✓	3.55E−04	2.03	3.00E−04	2.01	3.50E−04	2.00
	20	8.56E+02	✓	1.76E−04	—	3.18E−05	—	5.01E−05	—
$\mathbb{P}_2$	30	1.93E+03	✓	6.01E−05	2.65	1.16E−04	↑	1.56E−04	↑
	40	3.42E+03	✓	2.75E−05	2.72	9.08E−05	0.85	1.37E−04	0.47
	20	8.57E+02	✓	7.55E−06	—	3.35E−07	—	2.50E−06	—
$\mathbb{P}_3$	30	1.94E+03	✓	1.35E−06	4.24	5.57E−08	4.43	4.23E−07	4.38
	40	3.45E+03	✓	4.06E−07	4.19	1.62E−08	4.29	1.22E−07	4.32
	20	9.73E+02	✓	2.22E−07	—	1.97E−08	—	3.56E−08	—
$\mathbb{P}_4$	30	2.19E+03	✓	3.54E−08	4.53	2.22E−08	↑	3.02E−08	0.41
	40	3.89E+03	✓	8.52E−09	4.95	1.05E−08	2.61	1.59E−08	2.23
	20	1.23E+03	✓	4.12E−08	—	2.18E−09	—	2.06E−08	—
$\mathbb{P}_5$	30	2.76E+03	✓	2.61E−09	6.80	1.40E−10	6.77	1.21E−09	7.00
	40	4.91E+03	✓	3.84E−10	6.66	2.18E−11	6.46	1.65E−10	6.93

Table 20: Numerical results of pure diffusion for $\phi(x) = \exp(x)$, $\kappa(x) = 1$, and $u(x) = 0$ (Neumann bc and 18 cells with $d+1$ and the other cells with d).

	I	cond(A)	$A^{-1} \geq 0$	$E_{c,1}$	$O_{c,1}$	E_1	O_1	E_∞	O_∞
	20	6.45E+02	✓	1.45E−03	—	1.21E−03	—	1.40E−03	—
$\mathbb{P}_1$	30	1.46E+03	✓	6.37E−04	2.04	5.34E−04	2.01	6.23E−04	2.00
	40	2.59E+03	✓	3.55E−04	2.03	3.00E−04	2.01	3.50E−04	2.00
	20	8.57E+02	✓	1.01E−04	—	4.54E−05	—	5.06E−05	—
$\mathbb{P}_2$	30	1.93E+03	✓	5.90E−05	1.34	1.06E−04	↑	1.39E−04	↑
	40	3.43E+03	✓	2.71E−05	2.71	8.72E−05	0.68	1.28E−04	0.28
	20	8.57E+02	✓	7.55E−06	—	3.35E−07	—	2.50E−06	—
$\mathbb{P}_3$	30	1.94E+03	✓	1.35E−06	4.24	5.57E−08	4.43	4.23E−07	4.38
	40	3.45E+03	✓	4.06E−07	4.19	1.62E−08	4.29	1.22E−07	4.32
	20	9.73E+02	✓	2.22E−07	—	1.71E−08	—	3.59E−08	—
$\mathbb{P}_4$	30	2.19E+03	✓	3.51E−08	4.55	1.99E−08	↑	2.65E−08	0.75
	40	3.89E+03	✓	8.47E−09	4.94	1.00E−08	2.40	1.49E−08	2.01
	20	1.23E+03	✓	4.08E−08	—	2.17E−09	—	2.06E−08	—
$\mathbb{P}_5$	30	2.76E+03	✓	2.61E−09	6.78	1.40E−10	6.77	1.21E−09	7.00
	40	4.91E+03	✓	3.84E−10	6.66	2.18E−11	6.45	1.65E−10	6.93