

# 1 Magnus expansion for $A, B$ constant and deterministic

## 1.1 Values of Moments

**Configuration**  $\Delta = 0.0001, M = 1000$

Method	$E[(X_t^{11})^k]$	$E[(X_t^{12})^k]$	$E[(X_t^{21})^k]$	$E[(X_t^{22})^k]$	run 1	run 2	run 3	mean
$k = 1$								
euler	0.884995	0.136974	-0.913738	1.99784	7.04145	6.83223	6.94605	6.93991
m1	1.23538	-0.510346	-1.38672	2.88552	0.273418	0.11308	0.0808669	0.155788
m2	0	0	0	0	0	0	0	0
m3	0	0	0	0	0	0	0	0
$k = 2$								
euler	1.20982	1.09315	1.78757	7.06842	7.04276	6.83263	6.94564	6.94034
m1	2.49141	3.21348	3.99804	15.4156	0.273259	0.113674	0.080671	0.155868
m2	0	0	0	0	0	0	0	0
m3	0	0	0	0	0	0	0	0
$k = 3$								
euler	2.62519	-3.20706	-5.74199	40.8729	7.04137	6.83229	6.94576	6.93981
m1	8.21939	-20.9025	-18.9891	136.058	0.273378	0.1131	0.0807921	0.155757
m2	0	0	0	0	0	0	0	0
m3	0	0	0	0	0	0	0	0