

```

for (j in 0:N) {

  if (j == 0) {
    W = 0;
    EM = X0;
  }
  if (j > 0) {
    dW = rnorm(1,0, sqrt(T/N));
    W = W_vec[j] + dW;
    EM = EM_soln[j] + lambda*EM_soln[j]*T/N + mu*EM_soln[j]*dW;
  }
  W_vec[j+1] = W;
  EM_soln[j+1] = EM;

}
Xt = X0*exp((lambda-mu^2/2)*timeIncrements + mu*W_vec);

vectorOfFinalDifferences[iSim] = Xt[N+1] - EM_soln[N+1]

}

averageFinalDifference = mean(vectorOfFinalDifferences)
return(c(averageFinalDifference, T/N))

}

avgvec <- c()
dtvec <- c()
for (i in 1:5) {
  N <- 10^i

  a <- blackScholesConvergence(T=1,N,lambda=2,mu=1,nmbSimulations = 1000)
  avgvec[i] <- a[1]
  dtvec[i] <- a[2]
}
plot(log(dtvec),log(avgvec))
abline(lm(log(avgvec)~log(dtvec)),col='red')
abline(coef=c(0,.5),col='blue')

```

