```
Exit[]
```

```
s
```

$$\frac{1}{59}$$

```
3420
```

```
P0 = 0; S0 = 100; σ = 0.2; r = 0.0; T = 0.5; K = 7000000;
nt = Ceiling[K ^ (1 / 3)];
dt = N[T / nt]
n = Ceiling[K ^ (2 / 3)]; N[n ^ (-1 / 2)]

Timing[
 PE = 0; PV = 0; lP = {};
 Do[
  dW = RandomReal[NormalDistribution[], {nt}] / Sqrt[nt];

  W = 0; P = P0; S = S0;
  For[i = 1, i < nt + 1, i++,
   W += dW[[i]];
   dS = Exp[(r - σ ^ 2 / 2) i dt + σ W] * S0 - S;
   P += r P dt + (-2 UnitStep[P] + 1) (dS - r S dt);
   S += dS;
  ];

  PE += Max[P, 0];
  PV += Max[P, 0] ^ 2;
  AppendTo[lP, Max[P, 0]];

  , {n}];

 {"Mean:", Exp[-r T] PE / n, "2 StD of Mean:",
  2 Sqrt[Exp[-2 r T] / n / (n - 1) (PV - PE ^ 2 / n)]}
]
```

```
0.00260417
```

```
0.00522751
```

```
{98.873, {r:, 0., Mean:, 8.43189, 2 StD of Mean:, 0.118892}}
```

```
{9.70299999999986`,
 {"r:", 0.`, "Mean:", 8.283546638322484`, "2 StD of Mean:", 0.2529243696071112`}}
```

```
{10.435999999999922`,
 {"Mean in %:", 8.21466833216132`, "2 StD of Mean:", 0.25043002273258974`}}
```

```
PE / n / S0 * 100
```

```
20.2633
```

```
{5.896999999999991`,
 {"Mean in %:", 15.653555705091257`, "2 StD of Mean:", 1.257801821071628`}}
```

```
{5.850000000000023`,
 {"Mean in %:", 8.135967442770141`, "2 StD of Mean:", 0.8236934394048495`}}
```

```
{6.9879999999999995`,
 {"Mean:", 0.1515643123601304`, "StD of Mean:", 0.0025561886989783696`}}
```