Geometric Brownian motion generating

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$$S(t) = x \exp\left\{\left(r - \frac{\sigma^2}{2}\right) t + \sigma W(t)\right\}, t > 0$$

```
T <- 1
n <- 100
delta <- 1/n
t <- seq(0, T, length = n)
W <- numeric(n)
for (i in 2:n) {
  W[i] <- W[i-1] + sqrt(delta) * rnorm(1)
}
x = 10
sigma = 0.5
r = 1
S = x * exp((r - sigma^2/2)*t + sigma*W)
plot(t, S, type = 'l')
```