Use the code below to answer the following questions.

```
x = 17
for i from 0 to n-1
   x = x * (x-2)
```

1) Assuming all arithmetic can be done in hardware, what is the asymptotic runtime of this algorithm?

2) Assuming all arithmetic can be done in hardware, what is the asymptotic space requirement of this algorithm?

3) If n is large enough that the arithmetic needs to be done in software, what is the asymptotic space requirement of this algorithm?