The Problem

Richie Rich celebrates his birthday on April 1. This year, his parents have given him his choice of gifts. He can choose one of the following options:

Option 1	

His parents will give him $500,000 on April 1.

Option 2	

His parents will deposit $2 in a savings account on April 1. Each day they will double the amount in that account until the end of the month. On April 30, Richie can have whatever money has accumulated in the account.

Which option would you choose?

Option 1, they end up with $500,000, but option 2 yields 2^{30} or $1,073,741,824.

Account Balance				
Day 1	Day 2	Day 3	Day 4	Day 5
$2	$4	$8	$16	$32
Day 6	Day 7	Day 8	Day 9	Day 10
$64	$128	$256	$512	$1,024
Day 11	Day 12	Day 13	Day 14	Day 15
$2,048	$4,096	$8,192	$16,384	$32,768
Day 16	Day 17	Day 18	Day 19	Day 20
$65,536	$131,072	$262,144	$524,288	$1,048,576
Day 21	Day 22	Day 23	Day 24	Day 25
$2,097,152	$4,194,304	$8,388,608	$16,777,216	$33,554,432
Day 26	Day 27	Day 28	Day 29	Day 30
$67,108,864	$134,217,728	$268,435,456	$536,870,912	$1,073,741,824