Data units conversion

2^0	2^1	2^2	2^3	2^4	2^5	2^6	2^7	2^8	2^9	2^{10}	^{11}	2^{12}	2^{13}
1	2	4	8	16	32	64	128	256	512	1024	2048	4096	8192

Name	Symbol	Value
bit	b	1b = 0, 1b = 1
byte	B	1B = 8b
kilobyte	KB	1KB = 1024B = 2^{10}B = 1024*8b = 8192b = 2^{13}b
megabyte	MB	1MB = 1024KB = 2^{10}KB = 2^{20}B = 2^{20}*2^3 = 2^{23}b
gigabyte	GB	1GB = 1024MB = 2^{10}MB = 2^{10}*2^{10}*2^{10} = 2^{30}B*2^3 = 2^{33}b
terabyte	TB	1TB = 1024GB = 2^{43}b
petabyte	PB	1PB = 1024TB
...	...	...

1MB = 8Mb
1GB = 8Gb

32768B = 2^{15}B = 2^{15}*2^3 = 2^{18}b
2^{18}b÷2^{10} = 2^8Kb (kilobits)
2^8Kb÷2^{10} = 2^{-2}Mb (megabits)
2^{-2}Mb÷2^{10} = 2^{-12} Gb (gigabits)

0,25TB = 2Tb = 2^1*2^{10} = 2^{11}Gb
2048GB = 2^{11}GB = 2^{11}*2^{10}*2^{10} = 2^{31}KB

Exercise 1. How long will it take to download a 1GB file with a 300Mb/s constant link?

1GB = 1024MB = 8192Mb
8192/300 = 27,3s

Exercise 2. Can we save 250 800KB files on a 32GB pendrive?

32GB = 2^5*2^{10} = 2^{15}MB*2^{10} = 2^{25}KB = 33554432KB
33554432/800 ≈ 41943
Answer: Yes, we can.