

1. Fill in the following table of numbers in decimal, binary, octal, and hexadecimal.

base	example				
decimal	10	256	512	32	512
binary	b1010	b10000000	b1000000000	b100000	b1000000000
octal	o12	o400	o1000	o40	o1000
hexadecimal	0xA	0x100	0x200	0x20	0x200

note: why are there duplicate columns?

base	example				
decimal	10	31582	153	196	65535
binary	b1010	b111101101011110	b10011001	b11000100	b1...1 (2^{16})
octal	o12	o75536	o231	o304	o177777
hexadecimal	0xA	0x7B5E	0x99	0xC4	0xFFFF

note: I used expansion steps in a calculator, e.g., o75536:

$$7 \cdot 8^4 + 5 \cdot 8^3 + 5 \cdot 8^2 + 3 \cdot 8^1 + 6 = 31582$$

but then on then it got tedious rather than insightful, so then I used python.

2. Complete the following:

0x189	b1010010100	o743
+ 0x345	+ b0101101011	+ o265
	b1111111111	
0xDEAD	b1111111111	o100
+ 0xBEEF	+ b1	+ o777
	b10000000000	
0x89	b0111111111	o74
× 0xAB	× b1000000001	× o26
	b10000000000	