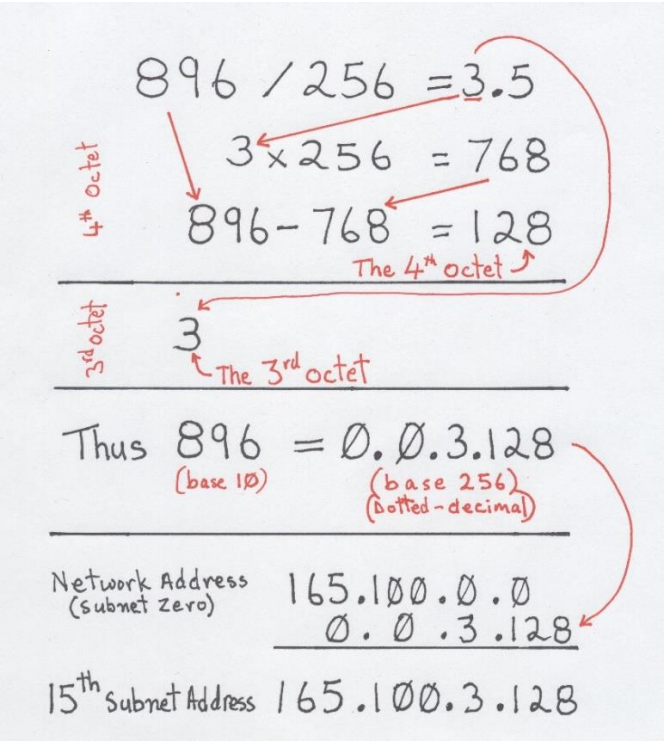
Subnetting: Problem 2

Number of needed subnets	1000	1000 is not a power of 2. Use 1024, the power of 2 above 1000. 2 to the power of what, will get you 1024? $2^{10} = 1024$. The exponent of 10, means that we need to borrow 10 bits to get 1024 subnets.
Number of needed usable hosts	60	60 is not a power of 2. Use 64, the power of 2 above 60.
Network Address	165.100.0.0	(Subnet zero)
Address class	B	
Default subnet mask	255.255.0.0	
Custom subnet mask	**255.255.255.192**	We start at 255.255.0.0, and borrow 10 bits for the subnets. 11111111.11111111.**ssssssss.ss**000000 (s=bits turned on)
Wildcard Mask	0.0.0.63	(255 – 192 = 63) Block size 256 – 192 = 64
Total number of subnets	1,024	$2^{10} = 1024$
Total # of host addresses	64	
Num. of usable addresses	62	
Num. of bits borrowed	**10**	

What is the 15th subnet range?

- How many addresses must we add to the network address/subnet zero to jump to the 15th subnet?
- For the nth column, we subtract 1, to give us 14. (e.g. Subnet Number 14.)
- (Subnet number 14) x (64 addresses per subnet) = 896 addresses to be added to subnet zero.
- Convert **896** into a dotted-decimal value, that can be added to subnet zero, using Base-256 conversion.



Add the wildcard mask to the network address to get the broadcast address.