**Laura Daniela Brinez**

**Number conversion assignment**

Try completing the following problems. There are two sets of problems in this assignment, the first is converting bytes to KB, MB, GB, etc., and the second is to convert Decimal numbers to other bases (and back). Make sure you try all of them.

The key is to understand how to do them (best with a minimum use of a calculator since you won’t be allowed to use one on quizzes and exams).

Once you’ve completed your attempt, write up a 1 page reflection on your effort, including such things as:

* Did you work with anyone to do these? If yes, who did you work with, and how did that go?
* Did you have any problems with some of these problems? If yes, which ones?
* How confident are you at completing problems like this?

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Problem Number** | **Convert from** | **Units** | **to** | **Units** |
| 1 | 17 | KB | 17000 | Bytes |
| 2 | 2.85 | GB | 2850 | MB |
| 3 | 5 | Bytes | 40 | bits |
| 4 | 35 | MB | 2.800000000 | bits |
| 5 | 4096 | bits | 512 | Bytes |
| 6 | 4 | TB | 4000000 | MB |
| 7 | 2200 | MB | 2.2 | GB |
| 8 | 5400 | MB | 5400000 | KB |
| 9 | 6400 | GB | 6.4 | TB |
| 10 | 6 | PB | 6000000000 | MB |
| 11 | 2048 | Bytes | 2.048 | KB |
| 12 | 13.75 | TB | 13750 | GB |
| 13 | 650 | GB | 0.00065 | PB |
| 14 | 16000 | bits | 2 | KB |
| 15 | 24000000 | Bytes | 24 | MB |

**Suppose you just purchased a Seagate 5 TB external hard drive. About how many songs could you store on this drive? How long would it take you to listen to all that music?**

* 5 TB of storage is the same as (=) 5,000 Gigabytes or (=) 5,000,000 Megabytes and so the external Hard Drive can store approximately 1,250,000 (1.25 million) songs on the device, taking into account that an Average Music File size is 4MB.
* Taking into account that each song is approximately 3 minutes long, it would take me approximately 3,750,000 minutes or in other words, 62,500 hours, or 2604 days, that’s approximately 7 years, since one day (=) 1440 minutes .

**What if rather than storing music on this drive, you decided to store movies/tv shows on it so you could watch them when you aren’t connected to the internet. About how many hours of visual media could you store? About how many movies would this be? How long would it take you to watch all of this?**

* If instead of storing music, I decided to store movies, I could probably store 200 movies, taking into account that I have an External Hard Drive of 5TB or 5000 GB, and that an average movie size is 25GB.
* On the other hand, if I decide to store TV shows, which approximately have an average size of 8 GB, I would be able to store, with the same 5000 GB, 625 TV shows.
* Taking into account that a movie lasts approximately 2 hours, which would be equivalent to 200 movies, it would give us a total of 400 hours of movies. Let’s say I watch 2 movies per week, it would take me 700 days to finish all the movies.
* Then for TV shows, since they are approximately 45 minutes each, and there is 625 TV shows, it would take me 28125 minutes or 469 hours. Let’s say I watch 4 TV shows per day, it would take me 156 days to finish all the TV shows.

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| **Convert from  Base 10** | **Convert TO  Base 2** |
| 22 | 10110 |
| 56 | 111000 |
| 37 | 100101 |
| 19 | 10011 |
| 45 | 101101 |
|  |  |
| **Convert from  Base 2** | **Convert TO  Base 10** |
| 11010 | 26 |
| 111--- | 7 |
| 10010 | 18 |
| 110111 | 55 |
| 101110 | 46 |
|  |  |
| **Convert from  Base 10** | **Convert TO  Base 16** |
| 23 | 17 |
| 34 | 22 |
| 47 | 2F |
| 89 | 59 |
| 124 | 7C |
|  |  |
| **Convert from  Base 16** | **Convert TO  Base 10** |
| 24 | 36 |
| 3B | 59 |
| A5 | 165 |
| 203 | 515 |
| FE | 254 |
|  |  |
| **Convert** | **from Base** | **to** | **Base** |
| 1101111 | 2 |  | 16 |
| 101001111110 | 2 |  | 16 |
| 249 | 16 |  | 2 |
| B5D | 16 |  | 2 |
| 213 | 4 |  | 7 |
| 2BA | 12 |  | 8 |

6F

A7E

1001001001

101101011101

54

656

REFLECTION:

After finishing my homework of Number Conversions, I feel like I know a whole new topic I was unaware of before. I wanted to do it by myself, since I felt that I was not going to be able to concentrate and get it all done if I was with someone else, however I did ask some of my classmates to confirm a couple answers I was doubting about. Also to have some reference numbers, like the ones for the lasting time of the movies and TV shows, since there can be many points of view and perspectives, but it was always good to have an approximate point of reference to see if the answers I was getting were alright. At the end, everything went pretty good and I could figure most of the homework by myself.

As I mention above, I did have some problems at the beginning, since this was a new topic for me and I remember I saw it once in high school, but not that specifically. Specially, I was having issues, in the first part, with 3, 4, 5, 10, 13, 14 since they had the terms bits and the PB which were the ones I had more trouble trying to convert, since I almost never use those terminologies when trying to convert unities. On the second part I was having problems with the ones that had letters on them, like: 3B, A5, FE, B5D since it was hard for me to remember what each letter represented and then when mixing them with numbers it was hard for me trying to figure out how to solve those ones that were mixed.

I feel like at the end, even though I finish the task, I still need to practice more and more because right now, i don’t feel 100% confident solving this problems without the help of somebody else and in an extreme case a calculator. I feel like with more practice, I will be able to nail it and learn the theory very well to put it in practice next time when doing these type of exercises in a work, quiz or exam. In other words, I feel like I learned more than what I knew at the beginning, but I’m still missing more practice to don’t doubt when putting the right answer.