Units of Storage

CLNandi (Dr)

Learn this off by heart

Units

These units describe how much disk space, disk capacity or disk storage is used.

Name	Size	Example	Other information
Bit	A Single Binary Digit (1 or 0)	Each bit is represented either as a 1 or 0.	(1) Bit stands for Binary Digit. (2) It is the smallest unit of data a computer can store.
Nibble	This is a group of 4 bits	0001 0010 0011	(1) Nibbles are handy when converting between binary and hexadecimal. (2) A Nibble will only cover decimal numbers between 0 and 15.
Byte	A collection of 8 bits (2 Nibbles)	A byte can store 1 character such as 'A', or 'e' or '£'	
Kilobyte (kB)	1000 bytes (10^3 bytes)	Text Files	Actually a kB is 1024 bytes, but in an exam to make calculations easier we say it is 1000 bytes.
Megabyte (MB)	1000,000 bytes (10^6 bytes, million bytes)	Storage space on a CD	
Gigabyte (GB)	1000,000,000 (10^9 bytes)	Hard drive sizes	Typically hold over 3,000 books.
Terabyte (TB)	1000,000,000,000 (10^{12} bytes)	Ever increasingly so hard drives are expressed in TB.	Can store (1) Over 300 hours of video (2) 1,000 copies of the Encylopedia Britannica.
Petabyte(PB)	1000,000,000,000,000 (10^{15} bytes)	This is a massive amount of storage.	It can hold (1) Over 2000 years worth of songs, back to back

Question 1

(1) Convert 4,800 MB into GB

Question & Answer 1

(1) Convert 4,800 MB into GB

Answer

First of all we can convert to Bytes

1 GB = 10^9 Bytes

1 MB = 10^6 Bytes

4,800 MB = 4,800 * 10^6 Bytes

Question 2

(2) Convert 800 TB into GB

Question & Answer 2

(1) Convert the following:-

Convert 800 TB into GB

Answer

1 TB = 10^{12} Bytes

1 GB = 10^{9} Bytes

So 1 TB = 10^{3} * 10^{9} Bytes

1 TB = 10^{3} GB

400 TB = 400 * 10^{3} GB

400 TB = 4 * 10^{5} GB

400 TB = 40,000 GB

Question 3

(3) Order the following units from largest to smallest.

GB, bit, PB, byte, nibble, MB

Question & Answer 3

(3) Order the following units from largest to smallest.

GB, bit, PB, byte, nibble, MB

Answer

(i) Bit **(ii) Nibble** **(iii) Byte** **(iv) MB** **(v) GB** **(vi) PB**

(1 Nibble is 4 bits) **(1 Byte is 8 bits)** **(1 MB is 10^6 bytes)** **(1 GB is 10^9 bytes)** **(1 PB is 10^{15} bytes)**

Question 4

(4) Alex transfers some videos to a computer for editing,

(i) The computer has 1 GB of free storage.

Calculate the number of videos that can be stored on the computer if each video is 100 MB in size.

Please show your working.

Question & Answer 4

(4) Alex transfers some videos to a computer for editing,

(i) The computer has 1 GB of free storage.

Calculate the number of videos that can be stored on the computer if each video is 100 MB in size.

Please show your working.

Answer

1 GB = 10^3 MB

So if each video is 100 MB in size and the amount of storage free is 10^3 MB

The number of videos which can be stored is: 10^3 /100

= 10^3 / 10^2

= 10 videos

That's all for now folks!

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