Math Assignment 2 - David Vallecampo

Q1 - Four devices A, B, C, D with total of 225GB

$\frac{1}{2}a = b$

$a = 2b$

$a + b + c + d = 225$

$c = 5(b + d)$

$2c + 4d = 500 - b$

$(2b) + b + (5(b+d)) + d = 225$

$3b + 5b + 5d + d = 225$

$8b + 6d = 225$

$d = \left(\frac{225 - 8b}{6}\right)$

$2(5(b+d)) + 4d + b = 500$

$10b + 10d + 4d + b = 500$

$11b + 14d = 500$

$11b + 14\left(\frac{225 - 8b}{6}\right) = 500$

$11b + 525 - \frac{56}{3}b = 500$

$-\frac{23}{3}b = -25$

$b \approx 3.26$

$\therefore a \approx 1.63$

$d \approx 34.16$

$c \approx 187.08$

Q2- Folder contains less than 100 files

$100 \bmod 5 = 3$ {3, 8, 13, 18, 23...} (78)

$100 \bmod 9 = 6$ {6, 15, 24, 33, 42, 51, 60, 69, (78) 87...}

$100 \bmod 11 = 1$ {1, 12, 23, 34, 45, 56, 67, (78)}

∴ There are 78 files.

Q3- Birthday March 2003 → March 2004

2004 is a leap year ∴ $366 \bmod 7 = 2$

The birthday would be on a Tuesday.

Q4- $2x = 3 + 5y$ ① ← ×2 → $4x = 6 + 10y$

$4x + 3y = 71$ ②

↑ ← Sub $4x$ into equation ②

∴ $(6 + 10y) + 3y = 71$

$13y = 65$

$y = 5$

$2x = 3 + 5(5)$

$x = 28/2$

$x = 14$

Q5-

$7j + 9s = 174$

$10j + 12s = 240$

$7j + 9(20 - 5/6 j) = 174$

$7j + 180 - 15/2 j = 174$

$-0.5j = -6$

$j = 12$

∴ $s = 20 - 5/6 j$

~~$s = 20 - 5/6 (12)$~~

$s = 10 (12) + 12s = 174$

$12s = 120$

$s = 10$

∴ Jenny makes $12/hr and Sarah $

Q6-

Q7-

Q8-

$3(4-y) = 2(y+5)$

$12 - 3y = 2y + 10$

$2 = 5y$

$\therefore \frac{2}{5} = y$

$\frac{x+3}{2} - \frac{3x}{10} = 7$ $\cdot 5 \cdot 10$ $\cdot 5 \cdot 10$ $\cdot 2 \cdot 10$

$\therefore 10x + 3 - 15x = 350$

$-5x = 350$

$\therefore x = -64$