

# 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

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

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

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

$\therefore$  There are 78 files.

Q3- Birthday March 2003  $\rightarrow$  March 2004

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

The birthday would be on a Tuesday.

$$\begin{aligned} \text{Q4- } 2x &= 3 + 5y \quad (1) \quad \leftarrow \times 2 \Rightarrow 4x = 6 + 10y \\ 4x + 3y &= 71 \quad (2) \quad \leftarrow \text{Sub } 4x \text{ into equation (2)} \end{aligned}$$

$$\therefore (6 + 10y) + 3y = 71 \quad \rightarrow 2x = 3 + 5(5)$$

$$13y = 65$$

$$y = 5$$

$$x = 28/2$$

$$x = 14$$

Q5-

$$7j + 9s = 174 \quad \leftarrow \therefore s = 20 - 5/6j$$

$$10j + 12s = 240$$

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

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

$$-0.5j = -6$$

$$j = 12$$

$$\begin{aligned} &\cancel{10j + 12(20 - 5/6j) = 240} \\ &10(12) + 12s = 174 \end{aligned}$$

$$12s = 120$$

$$s = 10$$

$\therefore$  Jenny makes \$12/hr and Sarah \$10/hr

Q6-

Q7-

Q8-

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

$$12 - 3y = 2y + 10$$

$$2 = 5y$$

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

$$\frac{x+3}{8} - \frac{3x}{10} = 7$$

*(Note: The original image has handwritten annotations above the fractions: ".f.10" above the first fraction and ".5.10" above the second fraction, indicating the common denominator used for cross-multiplication.)*

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

$$-5x = 350$$

$$\therefore x = -64$$