SEMANA #04: REGLA DE TRES — MAGNITUDES PROPORCIONALES

ARITMÉTICA

01 ÁREA (O) — DÍAS

$(\pi(R)^2)$

$\pi(2)^2$ — 8

$\pi(32)^2$ — X

R. de 3 Simple (Hay 2 Mag.) → Directa (Signos =) → "ASPA"

$\Rightarrow \pi(2)^2 X = 8\,\pi(32)^2$

$2^2 X = 8 \cdot 32^2$

$X = 72$

Rpta.

02 RAPIDEZ

$B = 1$

$A = 2(B)$ — $2A = \frac{C}{4}$

$A = 2$ — $8 = C$

	PERSONAS (RAPIDEZ)	DÍAS
A y B: (2+1)	3	33
A, B y C: (1+2+8)	11	X

P.D.3. Simple Inversa (Signos ≠) → "ECHADA"

$(3)(33)^3 = 11(X)$

$9 = X$

03 VOLUMEN (CUBO) — COSTO

$\frac{2}{3}(3R) = 2R$

$(32)^3$ — 7020

$(2R)^3$ — X

$(32)^3(X) = (2R)^3\,7020$

$27\,2^3 X = 8\,2^3\,7020$

$X = 2080$

Rpta.

04

CABALLOS	DÍAS
(9)	(45)
(15)	(X)

946

$9(45) = 15(X)$

$27 = X$

Rpta.

05

DIÁMETRO = 16

2 (RADIO) = 16

RADIO = 8

RADIO = 12

Área	Pintores
$\pi(8^2)$	x
$\pi(12^2)$	$x+40$

$\pi(8^2)(x+40) = \pi(12^2)(x)$

$8 \cdot 8 (x+40) = 12 \cdot 12 \cdot x$

$4x + 160 = 9x$

$160 = 5x$

$32 = x$

06

CAUSA — CIRCUNSTANCIA — EFECTO

Obreros	Días	Obra (m^2)
14	5	
70	x	120

$\therefore (14)(5)(120) = 70(x)(40)$

$3 = x$

07

CAUSA — CIRCUNSTANCIA — EFECTO

Señoras	Días	Chompas
60	24	250
45	16	x

$(60)(24)(x) = (45)(16)(250)$

$x = 125$

08

(CAUSA) — CIRCUNSTANCIA — efecto

Obreros	horas / día	Días	# Mesas
16	9	12	60
40	8	x	100

(9 - 1)

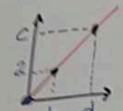
$(16)(9)(12)(100) = (40)(8)(x)(60)$

$9 = x$

∴ D.P. : "DIRECTAMENTE PROPORCIONAL" "PROPORCIONAL"

OPERACIONES:

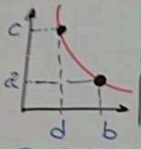
$\frac{a}{b}=\frac{c}{d}$; $\frac{A}{B}$; $\therefore \frac{a}{b}=\frac{c}{d}$



∴ I.P. : "INVERSAMENTE PROPORCIONAL"

OPERACIONES:

$(a).(b)=(c).(d)$; $(A).(B)$; $(a)(b)=(c)(d)$



09 D.P

	(I)	(II)
A	40	X
B	48	60

$\frac{40}{48}=\frac{X}{60}$ → $\frac{5}{6}=\frac{X}{10}$

$50=X$ Rpta

10 I.P.

	(I)	(II)
A	15	30
B	20	X

$15(20)=30(X)$

$10=X$ Rpta

11 $\frac{A.C^3}{\sqrt{B}}$

A = 3	$\frac{3.2^3}{\sqrt{256}}=\frac{24.(\frac{1}{2})^3}{\sqrt{X}}$	A = 24
B = 256	$\frac{3.8}{16}=\frac{24.\frac{1}{8}}{\sqrt{X}}$	B = X
C = 2	$\frac{1}{2}=\frac{1}{\sqrt{X}}$	C = $\frac{1}{2}$

$(\sqrt{X})^2=(2)^2$

$X=4$

12 $\frac{A}{B\,C.F^3}$

A = 160	$\frac{160}{5.y.2^3}=\frac{X}{8.y.5^3}$	A = X
B = 5	$\frac{160}{5.y.8}=\frac{X}{8.y.125}$	B = 8
C = Y	25	C = Y
F = 2	$4000=X$ Rpta	F = 5

13

$\frac{10-2}{4}=\frac{12-2}{X}=\frac{y-2}{\frac{X+2}{5}}$ (7)

$\frac{8}{4}=\frac{10}{X}$ (5)

$X=5$

$\frac{28}{4}=\frac{y-2}{7}$

$14=y-2$

$16=y$

$(z).(20)=(y)(x)$

$z(20)=(16)(5)$

$z=4$

$\therefore X+Y+Z=?$

$5+16+4=25$

14| $\frac{3}{x} = \frac{6}{3}$ | $(2)\cdot(y) = (6)(3)$

$3 = 2x$ | $y = 9$

$1{,}5 = x$ | $\therefore x + y = ?$

$1{,}5 + 9 = 10{,}5$

15| $\therefore \frac{x}{3} = \frac{3}{y} = \frac{z+4}{18} = \frac{2}{3}$

$\therefore \frac{x}{3} = \frac{2}{3}$ | $\frac{z+4}{18} = \frac{2}{3}$ | $x + z = ?$

$x = 2$ | $z + 4 = 12$ | $2 + 8$

$z = 8$ | 10 RPTA

$\therefore tg\theta = 0{,}666\ldots$

$tg\theta = 0{,}6 = \frac{6}{9} = \frac{2}{3} \Rightarrow \theta$

16| INICIO (?) — Obreros: x — Días: 48 — Obra: 60%

NORMAL: x — y — 40% — 100%

$48(40\%) = y(60\%)$

32 DIAS = y

Lo que falta:

	Obreros	DIAS	OBRA
NORMAL:	x	32	40%
SUCEDIO:	$x + 25$	24	40%

$32 - 8$

$(x)(32) = (x+25)(24)$

$4x = 3x + 75$

$x = 75$

17| INICIO → Obreros: 24 — h/d: 8 — Días: 21 — Obra: 1

NORMAL: 24 — 8 — 6 — y

$21(y) = 6(1)$

$y = \frac{2}{7}$ ya esta hecho

Falta: $\frac{5}{7}$

$21 - 6$

	Obreros	DIAS	Parte
$\therefore$ NORMAL:	24	15	$\frac{5}{7}$
SUCEDIO → $24 - 6$	18	x	$\frac{5}{7}$

$24(15) = 18(x)$

$20 = x$

Días más: $20 - 15 = 5$

EXERCICIOS

① Reduir:

$$M = (x+2)^2 - (2-x)^2 + (x-4)^2 - x^2 - 16$$

Sol!

$$(2+x)^2 - (2-x)^2 + (x)^2 - 2(x)(4) + (4)^2$$

$$4(2)(x) \quad + x^2 - 8x + 16 - x^2 - 16$$

$$8x \quad - 8x$$

$$0$$

② Reduir:

$$A = (2\sqrt{3} + 3\sqrt{2})^2 + (2\sqrt{3} - 3\sqrt{2})^2$$

$$2\left[(2\sqrt{3})^2 + (3\sqrt{2})^2\right] \qquad (a.b)^n = a^n.b^n$$

$$2\left[2^2.\sqrt{3}^2 + 3^2.\sqrt{2}^2\right]$$

$$2(4.3 + 9.2)$$

$$2(12+18) \Rightarrow 2(30) \Rightarrow 60$$