

ARITMÉTICA

01| NÚMEROS PRIMOS ABSOLUTOS
TIENE 2 DIV. EL MUNDO

$$\begin{aligned} 27 &\leftarrow \frac{1}{3} \\ 12 &\leftarrow \frac{1}{2} \\ 9 &\leftarrow \frac{1}{3} \end{aligned}$$

(d) ROLIN

02| $180 = 2^2 \times 3^2 \times 5$

✓ # DIVISORES (Totales) = $(3)(3)(2) = 18$

✓ # DIVISORES PRIMOS = # BASES = 3

✓ # DIVISORES COMPUESTOS:
 $(\# \text{DIVISORES}) - (\# \text{BASES}) - 1$
 $18 - 3 - 1 = 14$

INTENSIVO: REPASO # 04

03| $N = 16^n \times 85^n$
 $N = (2^4)^n \times (5 \times 17)^n$
 $N = 2^{4n} \times 5^n \times 17^n$

✓ # DIVISORES (N) = 81
 $(4n+1)(n+1)(n+1) = 81$
 $(4n+1)(n+1)^2 = (9)(3)^2$

$\therefore 4n+1=9 \quad n+1=3$
 $n=2 \quad n=2$

04| $14^{10} - 14^8$
 $14^8(14^2 - 1)$
 $14^8 \times 195$
 $(2^7 \times 7^8) \times 3^1 \times 5^1 \times 13^1$
 $2^8 \times 7^8 \times 3^1 \times 5^1 \times 13^1$
 $2^8 \times 3^1 \times 5^1 \times 7^8 \times 13^1$

... # DIVISORES = ?
 $9 \times 2 \times 2 \times 9 \times 2$
 (648)

05| $A = 18 \times 30^n$, $B = 18^n \times 30$
 $A = 2^1 \times 3^2 \times (2^1 \times 3^1 \times 5^1)^n$
 $A = 2^{n+1} \times 3^{2n+2} \times 5^n$
 $B = (2^1 \times 3^2)^n \times 2^1 \times 3^1 \times 5^1$
 $B = 2^{n+1} \times 3^{2n+1} \times 5^1$

✓ # DIVISORES A = 2 [# DIVISORES B]
 $(n+2)(n+3)(n+1) = 2 \cdot (n+2)(n+1) \cdot 2$
 $(n+3)(n+1) = 4 \cdot 2(n+1)$
 $n+3=8$
 $n=5$

$8n = ?$
 $8(5) = 40$

06| $N = 2^k \times 15^n$
 $N = 2^k \times (3 \times 5)^n$
 $N = 2^k \times 3^n \times 5^n$
 $N = 2^{n+1} \times 3^n \times 5^{n+1}$

... # DIV. COMPUESTOS (N) = 20
 $(n+2)(n+1)(2) - 3 - 1 = 20$
 $(n+2)(n+1)(2) = 24$
 $(n+2)(n+1) = (4)(3)$
 $n+2=4$
 $n=2$

07| $N = 13^{k+2} - 13^k$
 $N = 13^k \cdot 13^2 - 13^k \cdot 1$
 $N = 13^k(13^2 - 1)$
 $N = 13^k(168)$
 $N = 13^k \cdot 2^3 \times 3 \times 7$
 $N = 2^3 \times 3 \times 7 \times 13^k$
... # DIV. COM PUESTOS
 $(4)(2)(2)(k+1) - 1$
 $16(k+1) - 1$
 $k+1 =$
 $k =$

30

$$N = 2^1 \times 3^1 \times 5^1$$

$$N = 2^1 \times 3^1 \times 5^1$$

$$N = 3^{n+1} \times 5^1$$

$$N = 3^{n+1} \times 5^1$$

$$N = 3^{n+1} \times 5^1$$

$$N = 3^{n+1} \times 5^1$$

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$$N = 3^{n+1} \times 5^1$$

$$N = 3^{n+1} \times 5^1$$

$$N = 3^{n+1} \times 5^1$$

061

$$N = 2^1 \times 15^n$$

$$N = 3 \times 7 \times (3 \times 5)^n$$

$$N = 3^1 \times 7^1 \times 3^n \times 5^n$$

$$N = 3^{n+1} \times 5^n \times 7^1$$

$$\therefore \# \text{DIV. COMPUESTOS}(N) = 20$$

$$(n+2)(n+1)(2) - 3 - 1 = 20$$

$$(n+2)(n+1)(2) = 24$$

$$(n+2)(n+1) = (4)(3)$$

$$n+2=4$$

$$n=2$$

071

$$N = 13^{k+2} - 13^k$$

$$N = 13^k \cdot 13^2 - 13^k \cdot 1$$

$$N = 13^k (13^2 - 1)$$

$$N = 13^k (168)$$

$$N = 13^k \cdot 2^3 \times 3^1 \times 7^1$$

$$N = 2^3 \times 3^1 \times 7^1 \times 13^k$$

$$\therefore \# \text{DIV. COMPUESTOS}(N) = 75$$

$$(4)(2)(2)(k+1) - 4 - 1 = 75$$

$$16(k+1) = 80$$

$$k+1=5$$

$$k=4$$

081

$$360 = 2^3 \times 3^2 \times 5^1$$

$$\checkmark \text{SID} = \left(\frac{2^{3+1}-1}{2-1} \right) \times \left(\frac{3^{2+1}-1}{3-1} \right) \times \left(\frac{5^{1+1}-1}{5-1} \right)$$

$$= (15)(13)(6)$$

$$= 1170$$

$$\therefore \text{SID}_{(360)} = \frac{1170}{360} = 3.25$$

091

$$N = 3^5$$

$$N = 3^5$$

$$N = 3^5$$

$$N = 3^5$$

$$N = 3^5$$

$$N = 3^5$$

$$N = 3^5$$

$$N = 3^5$$

$$N = 3^5$$

$$N = 3^5$$

$$N = 3^5$$

$$N = 3^5$$

$$N = 3^5$$

101

$$2160 = 2^4 \times 3^3 \times 5^1$$

$$\checkmark \# \text{DIV.} = 2 \left[\frac{3}{2} \times \frac{3}{3} \times \frac{1}{5} \right]$$

$$= (4)(4)(2) = 32$$

$$\# \text{DIVISORES} = 24$$

$$(n+1)(n+1) = 24$$

$$(n+1)^2 = 24$$

$$n+1 = 5$$

$$n = 4$$

$$E = 3^5 - 3^3$$

$$E = 3^5 - 3^3$$

$$E = 3^5 - 3^3$$

$$E = 3^5 - 3^3$$

$$\checkmark \# \text{DIV.} = 3 \left[\frac{4}{2} \times \frac{2}{3} \times \frac{1}{5} \right]$$

$$= (5)(3)(2) = 30$$

$$\# \text{DIV.} = 2 \times 3 \times 5$$

$$= (3)(3)(2) = 18$$

$$\checkmark \# \text{DIV.} = 3 \times 5 \times 2$$

$$= (5)(3) = 15$$

$$\Sigma_{\text{TOTAL}} = 95$$

$$13) M = 2^m \times 3^4 \times 5^n$$

$$3^2 (2^m \times 3^2 \times 5^n)$$

$$2 [2^{m-1} \times 3^4 \times 5^n]$$

$$(m+1)(3)(n+1) = 60$$

$$(m)(3)(n+1) = 80$$

$$(m)(n+1) = 16$$

$$(m+1)(n+1) = 20$$

$$4 \quad 4$$

$$m = 4$$

$$n = 3$$

$$m+n = 7$$

MCM-MCD

24] $A = 12 \times 15^n$; $B = 15 \times 12^n$
 $A = 2^2 \times 3^1 \times (3 \times 5)^n$ | $B = 3^1 \times 5^1 \times (2^2 \times 3^1)^n$
 $A = 2^2 \times 3^1 \times 3^n \times 5^n$ | $B = 3^1 \times 5^1 \times 2^{2n} \times 3^n$
 $A = 2^2 \times 3^{n+1} \times 5^n$ | $B = 2^{2n} \times 3^{n+1} \times 5^1$

✓ $MCD(A, B) = 1620$

$2^2 \times 3^{n+1} \times 5^1 = 2^2 \times 3^4 \times 5^1$

∴ $n+1=4$

$n=3$

✓ $n=?$

25]

$A = 45 \times 60^n$; $B = 60 \times 45^n$
 $A = 3^2 \times 5^1 \times (2^2 \times 3 \times 5)^n$ | $B = 2^2 \times 3^1 \times 5^1 \times (3^2 \times 5^1)^n$
 $A = 3^2 \times 5^1 \times 2^{2n} \times 3^n \times 5^n$ | $B = 2^2 \times 3^1 \times 5^1 \times 3^{2n} \times 5^n$
 $A = 2^{2n} \times 3^{n+2} \times 5^{n+1}$ | $B = 2^2 \times 3^{2n+1} \times 5^{n+1}$

✓ $MCM(A, B) = 12 [MCD(A, B)]$

$2^{2n} \times 3^{n+2} \times 5^{n+1} = 2^2 \times 3^4 \times 2^{2n} \times 3^{n+2} \times 5^{n+1}$

$2^{2n} \times 3^{n+1} \times 5^{n+1} = 2^4 \times 3^{n+3} \times 5^{n+1}$

$2n=4$

$n=2$

$2n+1=n+3$

$n=2$

PA

5

26]

✓ $30^{50} = (2^1 \times 3^1 \times 5^1)^{50}$
 $= 2^{50} \times 3^{50} \times 5^{50}$

✓ $45^{40} = (3^2 \times 5^1)^{40}$
 $= 3^{80} \times 5^{40}$

✓ $60^{30} = (2^2 \times 3^1 \times 5^1)^{30}$
 $= 2^{60} \times 3^{30} \times 5^{30}$

∴ #DIV. DEL $MCD(30, 45, 60) = ?$

$30 = 2 \times 3 \times 5$

$3 \times 3 = 9$

$3 \times 3 = 9$

$3 \times 3 = 9$

$3 \times 3 = 9$

$3 \times 3 = 9$

34

9	2	5	3	2
A = 81x	B = 32x	2x	2x	x
r	2x	2x	x	0

$A - B = 880$
 $81x - 32x = 880$
 $49x = 880 \Rightarrow x = 20$

21/04/24 → EXONERADOS
 28/04/24 → ORDINARIOS

MCD

35

9	2	2	1	1	7
A = 228	B = 304	120	64	56	8
r	120	64	56	8	0

$B = ? = 304$
 $A = ? = 228$

$a + r = a - (a - r)$
 $j + 2 = j - 5$

$N = \frac{MCM(a, b, c, \dots) - 1}{r}$

MCD

36

PERNOS: ? / COSTO X PERNO

$5 + 4 = 5 - 1$
 $7 + 6 = 7 - 1$
 $9 + 8 = 9 - 1$
 $11 + 10 = 11 - 1$

$\# \text{Pernos} = \frac{MCM(5, 7, 9, 11) - 1}{r}$

$\# \text{Pernos} = \frac{3465 - 1}{r}$

$\# \text{Pernos} = \frac{3465(2) - 1}{6930 - 1}$

$\sum \text{Pernos} = 6 + 9 + 2 + 9 = 26$

ICM-MCD

$$1) A = 12 \times 15^n; B = 15 \times 12^n$$

$$A = 2^2 \times 3^1 \times (3 \times 5)^n$$

$$A = 2^2 \times 3^1 \times 3^n \times 5^n$$

$$A = 2^2 \times 3^{n+1} \times 5^n$$

$$B = 3^1 \times 5^1 \times (2^2 \times 3^1)^n$$

$$B = 3^1 \times 5^1 \times 2^{2n} \times 3^n$$

$$B = 2^{2n} \times 3^{n+1} \times 5^1$$

$$MCD(A, B) = 1620$$

$$2^{n+1} \times 3^1 \times 5^1 \equiv 2^2 \times 3^4 \times 5^1$$

$$\therefore n+1=4$$

$$n=3$$

25

$$A = 45 \times 60^n; B = 60 \times 45^n$$

$$A = 3^2 \times 5^1 \times (2^2 \times 3 \times 5)^n$$

$$A = 3^2 \times 5^1 \times 2^{2n} \times 3^n \times 5^n$$

$$A = 2^{2n} \times 3^{n+2} \times 5^{n+1}$$

$$B = 2^2 \times 3^1 \times 5^1 \times (3^2 \times 5^1)^n$$

$$B = 2^2 \times 3^1 \times 5^1 \times 3^{2n} \times 5^n$$

$$B = 2^2 \times 3^{2n+1} \times 5^{n+1}$$

$$\checkmark MCM(A, B) = 12 [MCD(A, B)]$$

$$2^{2n} \times 3^{2n+1} \times 5^{n+1} = 2^2 \times 3^4 \times 2^{2n} \times 3^{n+2} \times 5^{n+1}$$

$$2^{2n} \times 3^{2n+1} \times 5^{n+1} = 2^4 \times 3^{n+3} \times 5^{n+1}$$

$$2n=4$$

$$n=2$$

$$2n+1=n+3$$

$$n=2$$

Pr

5

26

$$\checkmark 30^{50} = (2^1 \times 3^1 \times 5^1)^{50}$$

$$= 2^{50} \times 3^{50} \times 5^{50}$$

$$\checkmark 45^{40} = (3^2 \times 5^1)^{40}$$

$$= 3^{80} \times 5^{40}$$

$$\checkmark 60^{30} = (2^2 \times 3^1 \times 5^1)^{30}$$

$$= 2^{60} \times 3^{30} \times 5^{30}$$

$$\therefore \#DIV. DEL MCD(30, 45, 60) = ?$$

$$30 \times 5 = 150$$

$$= 961$$

34

9

A =

A