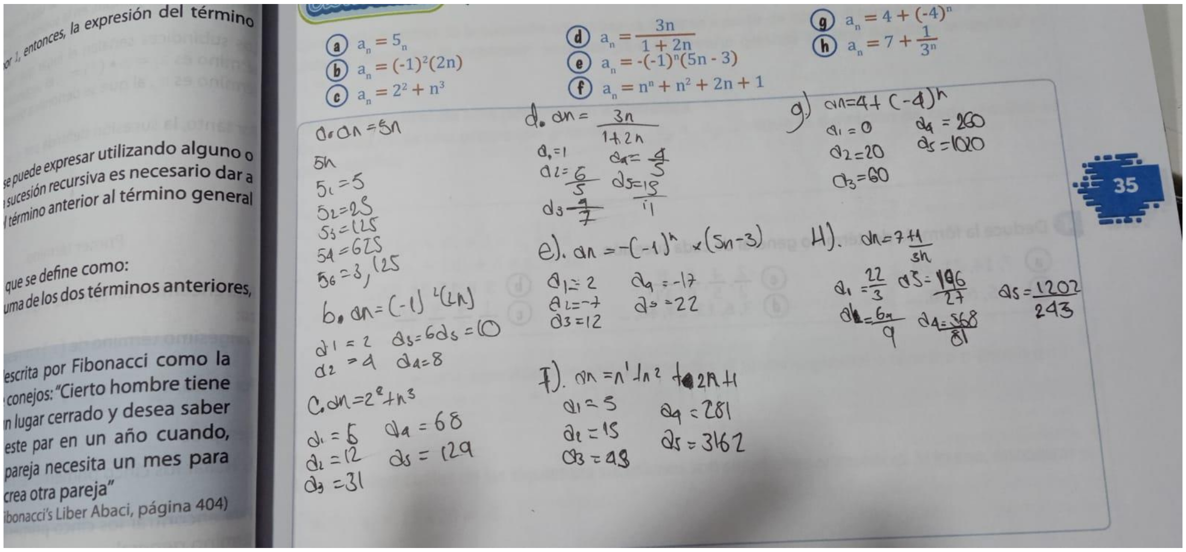


or 1, entonces, la expresión del término

se puede expresar utilizando alguno o
sucesión recursiva es necesario dar a
término anterior al término general

que se define como:
uma de los dos términos anteriores,

escrita por Fibonacci como la
conejos: "Cierto hombre tiene
n lugar cerrado y desea saber
este par en un año cuando,
pareja necesita un mes para
crea otra pareja"
ibonacci's Liber Abaci, página 404)

ⓐ $a_n = 5_n$
ⓑ $a_n = (-1)^2(2n)$
ⓒ $a_n = 2^2 + n^3$
ⓓ $a_n = \frac{3n}{1 + 2n}$
ⓔ $a_n = -(-1)^n(5n - 3)$
ⓕ $a_n = n^n + n^2 + 2n + 1$
ⓖ $a_n = 4 + (-4)^n$
ⓗ $a_n = 7 + \frac{1}{3^n}$

a. $an = 5n$
5n
$5_1 = 5$
$5_2 = 25$
$5_3 = 125$
$54 = 625$
$5_6 = 3,125$

b. $an = (-1)^2(2n)$
$a_1 = 2$ $a_5 = 6a_5 = 10$
$a_2 = 4$ $a_4 = 8$

c. $an = 2^2 + n^3$
$a_1 = 5$ $a_4 = 68$
$a_2 = 12$ $a_5 = 129$
$a_3 = 31$

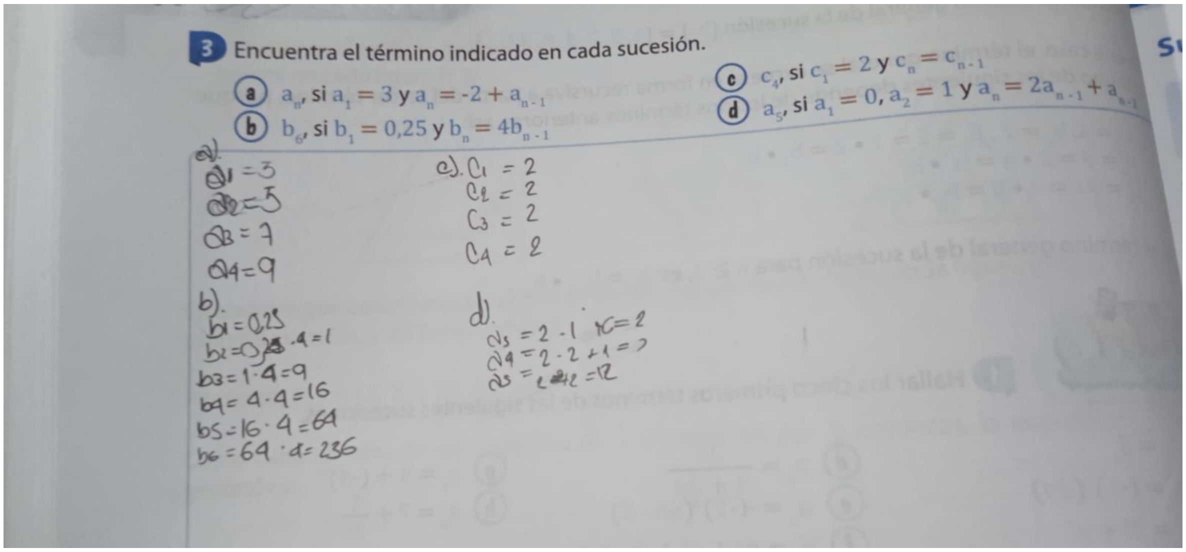
d. $an = \frac{3n}{1+2n}$
$a_1 = 1$ $a_4 = \frac{4}{5}$
$a_2 = \frac{6}{5}$ $a_5 = \frac{15}{11}$
$a_3 = \frac{9}{7}$

e). $an = -(-1)^n \times (5n-3)$
$a_1 = 2$ $a_4 = -17$
$a_2 = -7$ $a_5 = -22$
$a_3 = 12$

f). $an = n^1 + n^2 + 2n + 1$
$a_1 = 5$ $a_4 = 281$
$a_2 = 15$ $a_5 = 3162$
$a_3 = 48$

g) $an = 4 + (-4)^n$
$a_1 = 0$ $a_4 = 260$
$a_2 = 20$ $a_5 = 1020$
$a_3 = 60$

H). $an = 7 \frac{+1}{3n}$
$a_1 = \frac{22}{3}$ $a_3 = \frac{196}{27}$ $a_5 = \frac{1202}{243}$
$a_2 = \frac{64}{9}$ $a_4 = \frac{568}{81}$



3 Encuentra el término indicado en cada sucesión.

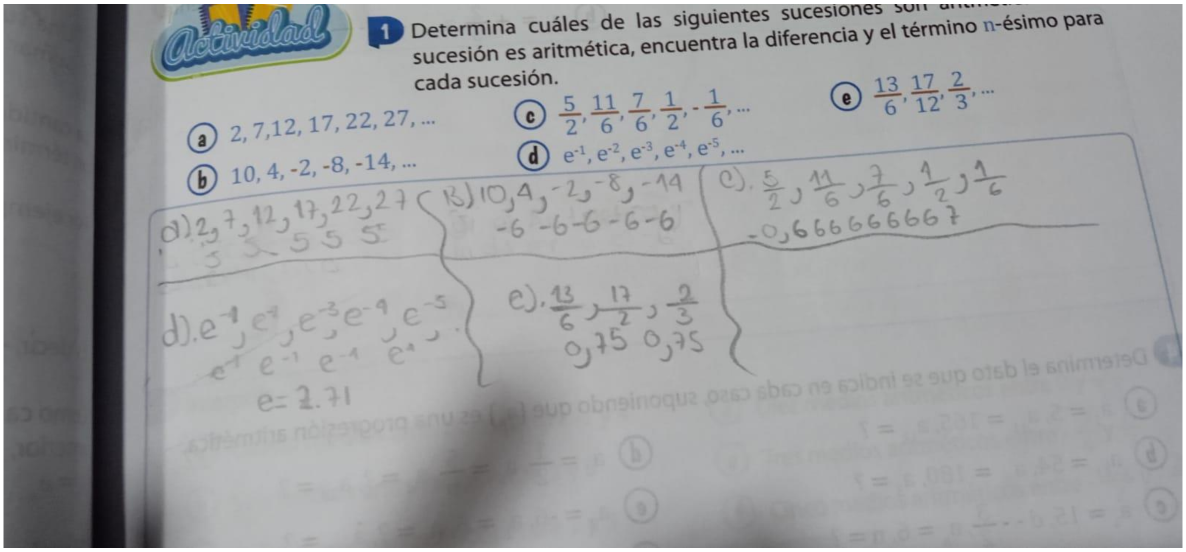
ⓐ a_n, si $a_1 = 3$ y $a_n = -2 + a_{n-1}$
ⓑ b_6, si $b_1 = 0,25$ y $b_n = 4b_{n-1}$
ⓒ c_4, si $c_1 = 2$ y $c_n = c_{n-1}$
ⓓ a_5, si $a_1 = 0$, $a_2 = 1$ y $a_n = 2a_{n-1} + a_{n-2}$

a).
$a_1 = 3$
$a_2 = 5$
$a_3 = 7$
$a_4 = 9$

b).
$b_1 = 0,25$
$b_2 = 0,25 \cdot 4 = 1$
$b_3 = 1 \cdot 4 = 9$
$b_4 = 4 \cdot 4 = 16$
$b_5 = 16 \cdot 4 = 64$
$b_6 = 64 \cdot 4 = 236$

c). $C_1 = 2$
$C_2 = 2$
$C_3 = 2$
$C_4 = 2$

d).
$a_3 = 2 \cdot 1 + 0 = 2$
$a_4 = 2 \cdot 2 + 1 = 5$
$a_5 = 2 \cdot 5 + 2 = 12$



Actividad

1 Determina cuáles de las siguientes sucesiones son aritméticas. Si la sucesión es aritmética, encuentra la diferencia y el término n-ésimo para cada sucesión.

a) 2, 7, 12, 17, 22, 27, ...

b) 10, 4, -2, -8, -14, ...

c) $\frac{5}{2}, \frac{11}{6}, \frac{7}{6}, \frac{1}{2}, -\frac{1}{6}, \ldots$

d) $e^{-1}, e^{-2}, e^{-3}, e^{-4}, e^{-5}, \ldots$

e) $\frac{13}{6}, \frac{17}{12}, \frac{2}{3}, \ldots$

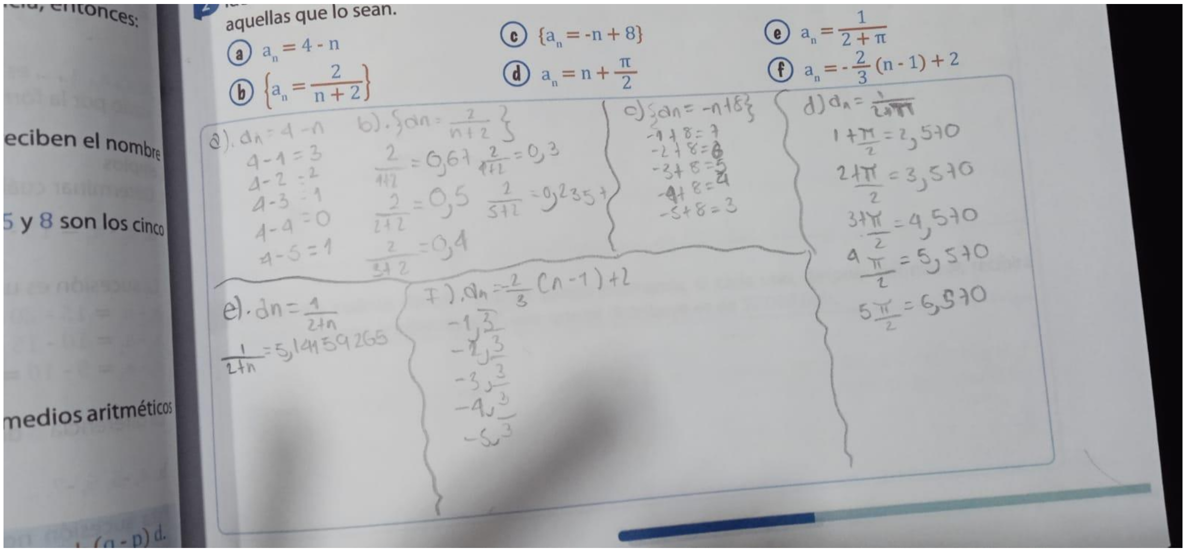
a) 2, 7, 12, 17, 22, 27
5 5 5 5 5

B) 10, 4, -2, -8, -14
-6 -6 -6 -6 -6

c). $\frac{5}{2}, \frac{11}{6}, \frac{7}{6}, \frac{1}{2}, \frac{1}{6}$
-0,666666667

d). $e^{-1}, e^{-1}, e^{-3}, e^{-4}, e^{-5}$
e^{-1} e^{-1} e^{-1} e^{-1}
e= 2.71

e). $\frac{13}{6}, \frac{17}{2}, \frac{2}{3}$
0,75 0,75



...cia, entonces:

...eciben el nombre

5 y 8 son los cinco

medios aritméticos

(q - p) d.

aquellas que lo sean.

a) $a_n = 4 - n$

b) $\left\{a_n = \frac{2}{n+2}\right\}$

c) $\{a_n = -n + 8\}$

d) $a_n = n + \frac{\pi}{2}$

e) $a_n = \frac{1}{2+\pi}$

f) $a_n = -\frac{2}{3}(n-1) + 2$

a). $d_n = 4 - n$
4-1=3
4-2=2
4-3=1
4-4=0
4-5=1

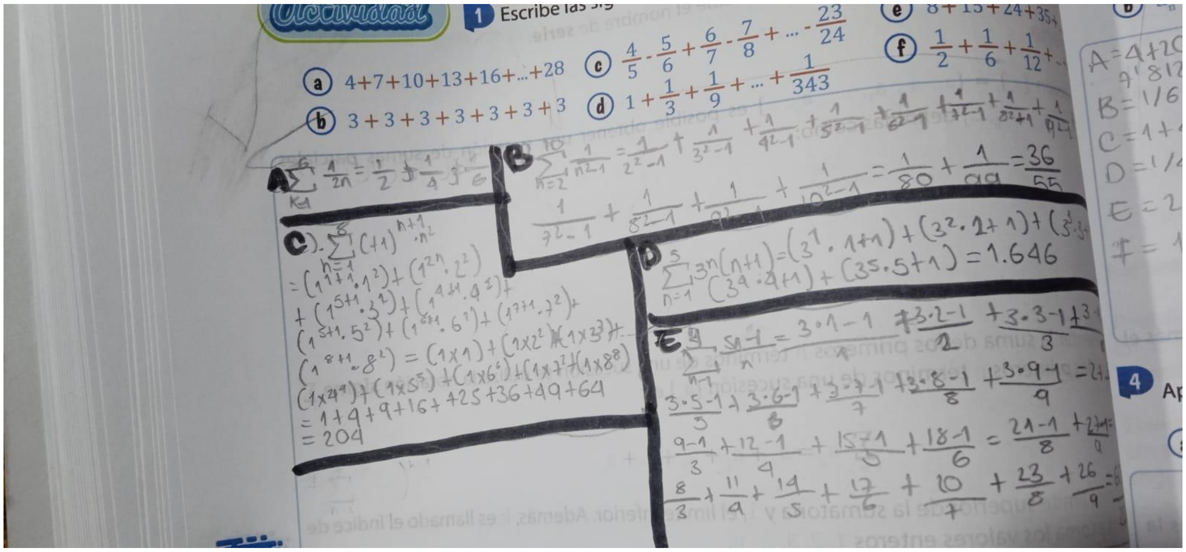
b). $\{d_n = \frac{2}{n+2}\}$
$\frac{2}{1+2} = 0,67$ $\frac{2}{4+2} = 0,3$
$\frac{2}{2+2} = 0,5$ $\frac{2}{5+2} = 0,2357$
$\frac{2}{3+2} = 0,4$

c) $\{d_n = -n+8\}$
-1+8=7
-2+8=6
-3+8=5
-4+8=4
-5+8=3

d) $d_n = \frac{1}{2+\pi}$
$1+\frac{\pi}{2} = 2,570$
$\frac{2+\pi}{2} = 3,570$
$\frac{3+\pi}{2} = 4,570$
$\frac{4\ \pi}{2} = 5,570$
$5\frac{\pi}{2} = 6,570$

e). $d_n = \frac{1}{2+n}$
$\frac{1}{2+n} = 5,14159265$

f). $d_n = -\frac{2}{3}(n-1)+2$
-1,3
-2,3
-3,3
-4,3
-5,3



1 Escribe las sig

ⓐ 4+7+10+13+16+...+28 ⓒ $\frac{4}{5}-\frac{5}{6}+\frac{6}{7}-\frac{7}{8}+\dots-\frac{23}{24}$ ⓔ 8+15+24+35+

ⓑ 3+3+3+3+3+3+3 ⓓ $1+\frac{1}{3}+\frac{1}{9}+\dots+\frac{1}{343}$ ⓕ $\frac{1}{2}+\frac{1}{6}+\frac{1}{12}+$

A $\sum_{k=1}^{6}\frac{1}{2n}=\frac{1}{2}+\frac{1}{4}+\frac{1}{6}$

B $\sum_{n=2}^{10}\frac{1}{n^2-1}=\frac{1}{2^2-1}+\frac{1}{3^2-1}+\frac{1}{4^2-1}+\frac{1}{5^2-1}+\frac{1}{6^2-1}+\frac{1}{7^2-1}+\frac{1}{8^2+1}+\frac{1}{9^2-1}$

$\frac{1}{7^2-1}+\frac{1}{8^2-1}+\frac{1}{9^2-1}+\frac{1}{10^2-1}=\frac{1}{80}+\frac{1}{99}=\frac{36}{55}$

C). $\sum_{n=1}^{8}(+1)^{n+1}\cdot n^2$

$=(1^{1+1}\cdot1^2)+(1^{2n}\cdot2^2)$

$+(1^{5+1}\cdot3^2)+(1^{4+1}\cdot4^2)+$

$(1^{5+1}\cdot5^2)+(1^{6+1}\cdot6^2)+(1^{7+1}\cdot7^2)+$

$(1^{8+1}\cdot8^2)=(1\times1)+(1\times2^2)(1\times3^3)+$

$(1\times4^4)+(1\times5^5)+(1\times6^6)+(1\times7^7+(1\times8^8)$

$=1+4+9+16+25+36+49+64$

$=204$

D $\sum_{n=1}^{5}3^n(n+1)=(3^1\cdot1+1)+(3^2\cdot2+1)+(3^3\cdot3$

$(3^4\cdot4+1)+(3^5\cdot5+1)=1.646$

E $\sum_{n=1}^{9}\frac{3n-1}{n}=\frac{3\cdot1-1}{1}+\frac{3\cdot2-1}{2}+\frac{3\cdot3-1}{3}+$

$+\frac{3\cdot8-1}{8}+\frac{3\cdot9-1}{9}=2+$

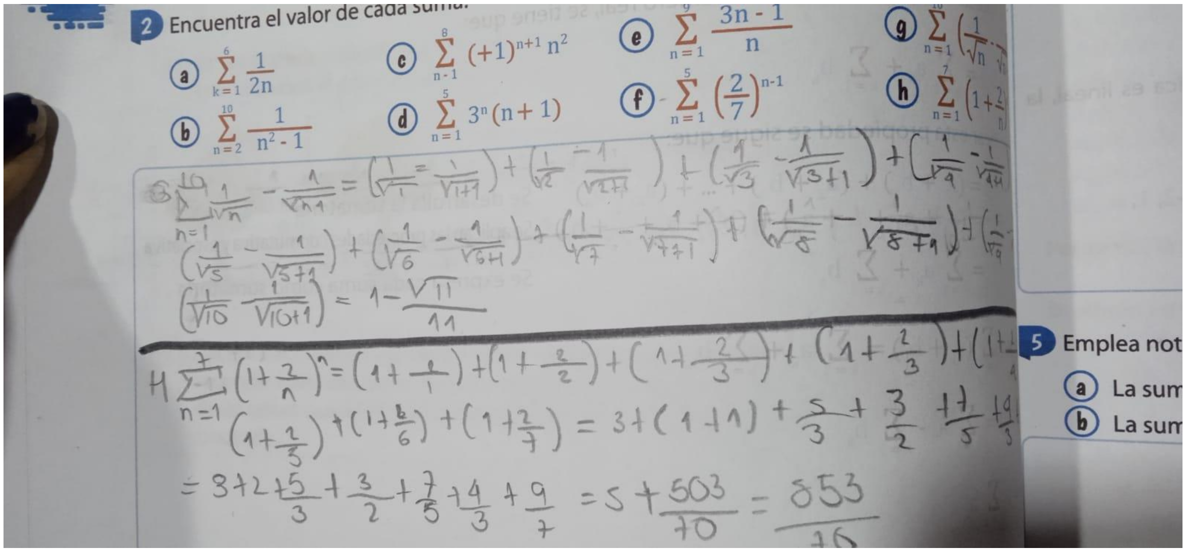
$\frac{3\cdot5-1}{5}+\frac{3\cdot6-1}{6}+\frac{3\cdot7-1}{7}$

$\frac{9-1}{3}+\frac{12-1}{4}+\frac{15-1}{5}+\frac{18-1}{6}=\frac{21-1}{8}+\frac{24-1}{9}=$

$\frac{8}{3}+\frac{11}{4}+\frac{14}{5}+\frac{17}{6}+\frac{10}{7}+\frac{23}{8}+\frac{26}{9}=$

A=4+2
7'812
B=1/6
C=1+
D=1/
E=2
F=1

4 Ap



2 Encuentra el valor de cada suma.

ⓐ $\sum_{k=1}^{6}\frac{1}{2n}$ ⓒ $\sum_{n-1}^{8}(+1)^{n+1}n^2$ ⓔ $\sum_{n=1}^{9}\frac{3n-1}{n}$ ⓖ $\sum_{n=1}^{10}\left(\frac{1}{\sqrt{n}}\right.$

ⓑ $\sum_{n=2}^{10}\frac{1}{n^2-1}$ ⓓ $\sum_{n=1}^{5}3^n(n+1)$ ⓕ $\sum_{n=1}^{5}\left(\frac{2}{7}\right)^{n-1}$ ⓗ $\sum_{n=1}^{7}\left(1+\frac{2}{n}\right.$

G $\sum_{n=1}^{10}\frac{1}{\sqrt{n}}-\frac{1}{\sqrt{n+1}}=\left(\frac{1}{\sqrt{1}}-\frac{1}{\sqrt{1+1}}\right)+\left(\frac{1}{\sqrt{2}}-\frac{1}{\sqrt{2+1}}\right)+\left(\frac{1}{\sqrt{3}}-\frac{1}{\sqrt{3+1}}\right)+\left(\frac{1}{\sqrt{4}}-\frac{1}{\sqrt{4+1}}\right.$

$\left(\frac{1}{\sqrt{5}}-\frac{1}{\sqrt{5+1}}\right)+\left(\frac{1}{\sqrt{6}}-\frac{1}{\sqrt{6+1}}\right)+\left(\frac{1}{\sqrt{7}}-\frac{1}{\sqrt{7+1}}\right)+\left(\frac{1}{\sqrt{8}}-\frac{1}{\sqrt{8+1}}\right)+\left(\frac{1}{\sqrt{9}}\right.$

$\left(\frac{1}{\sqrt{10}}-\frac{1}{\sqrt{10+1}}\right)=1-\frac{\sqrt{11}}{11}$

H $\sum_{n=1}^{7}\left(1+\frac{2}{n}\right)^n=\left(1+\frac{2}{1}\right)+\left(1+\frac{2}{2}\right)+\left(1+\frac{2}{3}\right)+\left(1+\frac{2}{3}\right)+\left(1+\frac{2}{4}\right.$

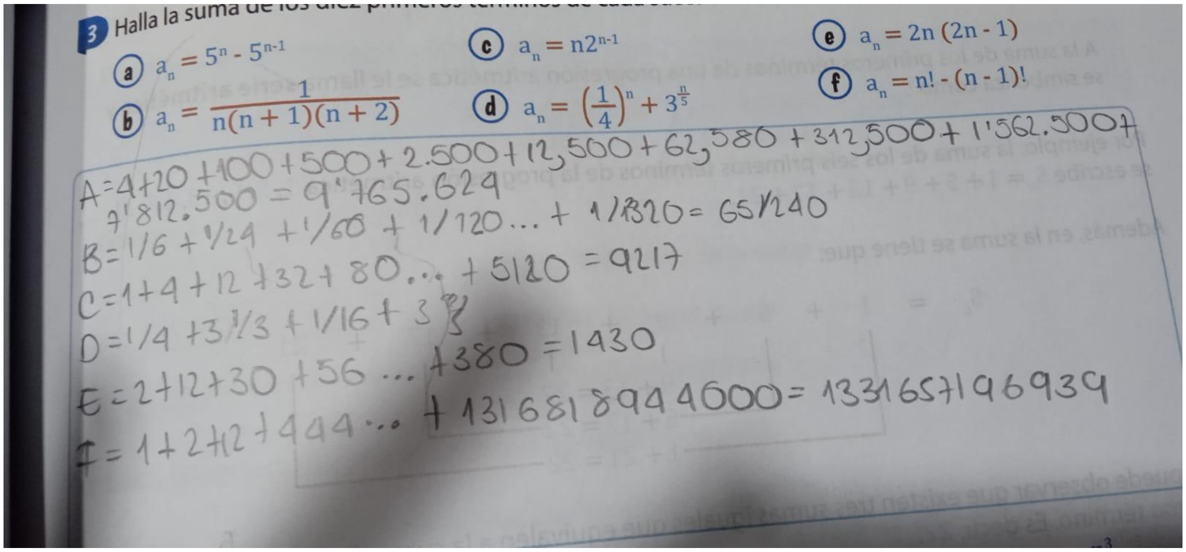
$\left(1+\frac{2}{5}\right)+\left(1+\frac{2}{6}\right)+\left(1+\frac{2}{7}\right)=3+(1+1)+\frac{5}{3}+\frac{3}{2}+\frac{7}{5}+\frac{9}{3}$

$=3+2+\frac{5}{3}+\frac{3}{2}+\frac{7}{5}+\frac{4}{3}+\frac{9}{7}=5+\frac{503}{70}=\frac{853}{70}$

5 Emplea not

ⓐ La sum

ⓑ La sum



3 Halla la suma

ⓐ $a_n = 5^n - 5^{n-1}$

ⓑ $a_n = \frac{1}{n(n+1)(n+2)}$

ⓒ $a_n = n2^{n-1}$

ⓓ $a_n = \left(\frac{1}{4}\right)^n + 3^{\frac{n}{5}}$

ⓔ $a_n = 2n\,(2n - 1)$

ⓕ $a_n = n! - (n - 1)!$

A=4+20+100+500+2.500+12,500+62,580+312,500+1'562.500+
7'812.500 = 9'765.624
B=1/6 + 1/24 + 1/60 + 1/120... + 1/1320= 65/240
C=1+4+12+32+80... + 5120 = 9217
D=1/4 +3 1/3 + 1/16 + 3 [illegible]
E=2+12+30+56 ... +380 = 1430
F= 1+2+12+444... + 1316818944600= 1331657196939