

SOMA DOS TERMOS
DO P.A.

$$\begin{aligned}
 (1) \quad & \left. \begin{array}{l} a_1 = 2 \\ R = 4 \\ a_n = 198 \end{array} \right\} \begin{array}{l} 198 = 2 + (n-1) \cdot 4 \\ 198 = 2 + 4n - 4 \\ 198 = 4n - 2 \end{array} \Rightarrow \begin{array}{l} 4n = 200 \\ n = 50 \\ S_{50} = \frac{(2 + 198) \cdot 50}{2} \\ S_{50} = \frac{200 \cdot 50}{2} = 5000 //
 \end{array}
 \end{aligned}$$

$$(2) \quad a) \quad \left. \begin{array}{l} a_{30} = 4 + 29 \cdot 6 \\ a_{30} = 4 + 174 \\ a_{30} = 178 \end{array} \right\} S_{30} = \frac{(4 + 178) \cdot 30}{2} = 2730 //$$

$$b) \quad \left. \begin{array}{l} a_{20} = 17 + 19 \cdot 4 \\ a_{20} = 17 + 76 \\ a_{20} = 93 \end{array} \right\} S_{20} = \frac{(17 + 93) \cdot 20}{2} = 1100 //$$

$$c) \quad S_{100} = \frac{(1 + 100) \cdot 100}{2} = 5050 //$$

$$d) \quad \left. \begin{array}{l} a_1 = 2 \\ a_{200} = 400 \end{array} \right\} S_{200} = \frac{(2 + 400) \cdot 200}{2} = 40200 //$$

$$\begin{aligned}
 (3) \quad & S_{20} = 710 \Rightarrow \frac{(a_1 + a_{20}) \cdot 20}{2} = 710 \Rightarrow a_1 + a_{20} = 71 \\
 & \left. \begin{array}{l} a_1 = 7 \\ a_{10} = ? \end{array} \right\} \Rightarrow 7 + a_{20} = 71 \Rightarrow a_{20} = 64 \\
 & \left. \begin{array}{l} a_{20} = a_1 + 19R \\ 64 = 7 + 19R \Rightarrow 19R = 57 \Rightarrow R = 3 \end{array} \right\} \\
 & a_{10} = 7 + 9 \cdot 3 \\
 & \quad \quad \quad \underline{a_{10} = 34}
 \end{aligned}$$

④ $(20, 25, 30, \dots, a_{61})$

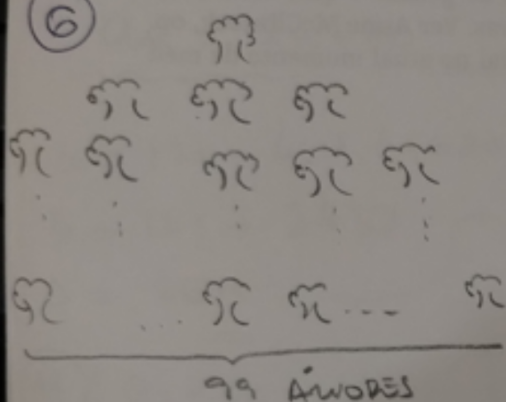
$$\begin{aligned} a_{61} &= 20 + 60 \cdot 5 \\ a_{61} &= 20 + 300 \\ a_{61} &= 320 \end{aligned} \quad \left. \vphantom{\begin{aligned} a_{61} &= 20 + 60 \cdot 5 \\ a_{61} &= 20 + 300 \\ a_{61} &= 320 \end{aligned}} \right\} S_{61} = \frac{(20 + 320)61}{2} = 10.370.505$$

⑤ $S_1 = 3 \cdot 1^2 = 3 = a_1$

$$S_2 = 3 \cdot 2^2 = 12 = a_1 + a_2 \Rightarrow \underline{a_2 = 9} \Rightarrow \underline{R = 6}$$

$$\Rightarrow a_5 = 3 + 4 \cdot 6 = 27 //$$

⑥



$(1, 3, 5, \dots, 99)$

$$99 = 1 + (n-1) \cdot 2$$

$$99 = 1 + 2n - 2$$

$$99 = 2n - 1$$

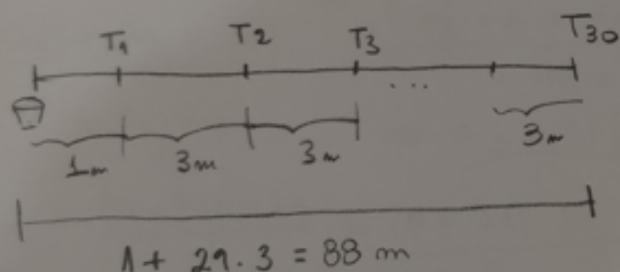
$$100 = 2n$$

$$\underline{n = 50}$$

$$S_{50} = \frac{(1+99) \cdot 50}{2}$$

$$S_{50} = 2.500 \text{ ANTEROS}$$

⑦



$(2, 8, 14, \dots, 176)$

$$S_{30} = \frac{(2 + 176) \cdot 30}{2} = 2670 \text{ m}$$

⑧ $(19, 23, 27, \dots, a_m)$

$$S_m = \frac{(19 + 15 + 4m)m}{2} = \frac{(34 + 4m)m}{2} = 492$$

$$S_m = 492$$

$$a_m = 19 + (m-1) \cdot 4$$

$$a_m = 19 + 4m - 4$$

$$a_m = 15 + 4m$$

$$\Rightarrow 4m^2 + 34m = 984 (\div 2)$$

$$\Rightarrow 2m^2 + 17m - 492 = 0$$

$$\Delta = 289 + 3936 = 4225$$

$$m = \frac{-17 \pm 65}{4} \Rightarrow$$

$$m_1 = -20,5 \text{ NAO!}$$

$$\underline{m_2 = 12 \text{ SEMANAS}}$$

⑧

$$(9) (x, x+20, \dots, a_{30})$$

$$a_{30} = x + 29 \cdot 20 \quad \left\{ \begin{array}{l} S_{30} = \frac{(x + x + 580) \cdot 30}{2} = 9600 \\ a_{30} = x + 580 \end{array} \right. \Rightarrow (2x + 580) \cdot 15 = 9600$$

$$\Rightarrow 2x + 580 = 640 \Rightarrow 2x = 60 \Rightarrow x = 30 \text{ km}$$

$$(10) (12, 14, 16, \dots, a_m)$$

$$S_m = \frac{(12 + 2m + 10) \cdot m}{2} = 620$$

$$a_m = 12 + (m-1) \cdot 2$$

$$a_m = 12 + 2m - 2$$

$$a_m = 2m + 10$$

$$\Rightarrow (2m + 22) \cdot m = 1240$$

$$\Rightarrow 2m^2 + 22m - 1240 = 0 \quad (/:2)$$

$$\Rightarrow m^2 + 11m - 620 = 0$$

$$\Delta = 121 - 4 \cdot 1 \cdot (-620)$$

$$\Delta = 121 + 2480$$

$$\Delta = 2601$$

$$m = \frac{-11 \pm 51}{2}$$

$$\begin{cases} m_1 = -31 \text{ NAO!} \\ m_2 = 20 \end{cases}$$

$$(11) \begin{cases} a_3 + a_6 = 34 \\ a_4 + a_9 = 50 \end{cases} \Rightarrow$$

$$\begin{cases} a_3 + a_3 + 3r = 34 \\ a_3 + r + a_3 + 6r = 50 \end{cases}$$

$$-4r = -16 \Rightarrow r = 4$$

$$a_{18} = a_3 + 15r$$

$$a_{18} = 11 + 15 \cdot 4$$

$$a_{18} = 71$$

$$= a_3 + a_{18}$$

$$\Rightarrow a_3 = 11$$

$$S_{20} = \frac{(a_1 + a_{20}) \cdot 20}{2} = \frac{(11 + 71) \cdot 20}{2} = 820 //$$

$$(12) \frac{(a_1 + a_{10}) \cdot 10}{2} = 200 \Rightarrow a_1 + a_{10} = 40 \Rightarrow a_{10} = 40 - 2 = 38$$

$$38 = 2 + 9r \Rightarrow r = 4$$

$$S_{40} = \frac{(3 + 120) \cdot 40}{2} = 2460$$

8480 N2
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$$(13) (3, 6, 9, \dots, a_{40})$$

$$a_{40} = 3 + 39 \cdot 3$$

$$a_{40} = 120$$

$$\text{total de cartas: } 2460 - 40 = 2420 //$$

$$a_{20} = 3 + 19 \cdot 3$$

$$a_{20} = 60$$

$$S_{20} = \frac{(3 + 60) \cdot 20}{2} = 610 //$$

$$(14)$$

$$3 + 4 + 5 = 12 \quad \left. \begin{array}{l} \\ \\ \end{array} \right\} +12$$

$$6 + 8 + 10 = 24 \quad \left. \begin{array}{l} \\ \\ \end{array} \right\} +12$$

$$9 + 12 + 15 = 36$$

