

Resolução da atividade 02 - Linguagem algébrica

27/08

21) a) $1 \quad 3 \quad 6 \quad 10 \quad 15 \quad 21 \quad 28 \quad 36 \quad 45 \quad 55$
 $\quad \quad \quad \underbrace{\quad}_{+2} \quad \underbrace{\quad}_{+3} \quad \underbrace{\quad}_{+4} \quad \underbrace{\quad}_{+5} \quad \underbrace{\quad}_{+6} \quad \underbrace{\quad}_{+7} \quad \underbrace{\quad}_{+8} \quad \underbrace{\quad}_{+9} \quad \underbrace{\quad}_{+10}$

b) $T_{25} = 325$ mas também $T_n = T_{n-1} + n$ então

$$T_{25} = T_{24} + 25$$

$$T_{25} - 25 = T_{24}$$

$$325 - 25 = T_{24}$$

$$T_{24} = 300 //$$

$$T_{26} = T_{25} + 26$$

$$T_{26} = 325 + 26$$

$$T_{26} = 351 //$$

c) i) $T_{54} = T_{53} + 54$

$$T_{54} - T_{53} = T_{53} + 54 - T_{53}$$

$$= 54 //$$

ii) $T_{47} - T_{46} =$

$$T_{46} + 47 - T_{46} = 47 //$$

$$(ii) T_{100} - T_{99} = T_{99} + 100 - T_{99} = 100 //$$

$$(iv) T_n - T_{n-1} =$$

$$T_{n-1} + n - T_{n-1} = n //$$

$$22 a) T_{24} = 1 + 2 + \dots + 24$$

$$T_{24} = 24 + 23 + \dots + 1$$

$$2 \cdot T_{24} = \underbrace{25 + 25 + \dots + 25}_{24 \text{ vezes}}$$

$$2T_{24} = 24 \cdot 25$$

$$T_{24} = 12 \cdot 25 = 300 //$$

$$T_{99} = 1 + \dots + 99$$

$$T_{99} = 99 + 98 + \dots + 1$$

$$2 \cdot T_{99} = \underbrace{100 + 100 + \dots + 100}_{99 \text{ vezes}}$$

$$2 \cdot T_{99} = 99 \cdot 100$$

$$\Rightarrow T_{99} = 99 \cdot 50$$

$$T_{99} = 495 //$$

$$T_{29} = 1 + 2 + \dots + 29$$

$$2T_{29} = 30 + 30 + \dots + 30$$

$$2T_{29} = 29 \cdot 30 = 870$$

$$\begin{array}{r} 30 \\ + 29 \\ \hline 270 \\ 600 \\ \hline 870 \end{array}$$

$$99 \cdot 50 =$$

$$\frac{990}{2} = 495$$

$$T_{1000} = 1 + 2 + \dots + 1000$$

$$2T_{1000} = \underbrace{1001 + 1001 + \dots + 1001}_{1000 \text{ vezes}}$$

$$T_{1000} = \frac{1000 \cdot 1001}{2} = 500500 //$$

$$1001 \cdot 500 = 500500$$

b)

$$S = 4 + 5 + \dots + 15 + 16$$
$$S = 16 + 15 + \dots + 5 + 4$$

$$2 \cdot S = \underbrace{20 + 20 + \dots + 20 + 20}_{13 \text{ vezes}}$$

$$2 \cdot S = 20 \cdot 13$$

$$S = 130 //$$

De 4 a 16 existem
13 números

c)

$$S = 2 + 4 + \dots + 38 + 40$$

$$2S = 20(40 + 2)$$

$$S = 10 \cdot 42$$

$$S = 420 //$$

$$d) S = 3 + 6 + 9 + \dots + 87 + 90$$

$$S = 90 + 87 + \dots + 6 + 3$$

$$2S = 93 \cdot 30$$

$$S = 93 \cdot 15$$

$$S = 1395$$

$$e) S = 10 + 20 + \dots + 100$$

$$2S = 110 \cdot 10$$

$$S = \frac{110 \cdot 10}{2} = \frac{1100}{2} = 550$$

$$\begin{array}{r} 1 \\ 93 \\ \underline{15} \\ 465 \\ 930 \\ \underline{\quad} \\ 1395 \end{array}$$

f) É exatamente 10 vezes o resultado de T_{10} . Faz sentido considerando a propriedade distributiva:

$$T_{10} = 1 + 2 + 3 + \dots + 9 + 10$$

$$10 \cdot T_{10} = 10(1 + 2 + 3 + \dots + 9 + 10)$$

$$10 \cdot T_{10} = 10 + 20 + 30 + \dots + 90 + 100$$

$$g) S = 1 + 2 + 3 + \dots + 59$$

$$S = 59 + \dots + 3 + 2 + 1$$

$$2S = 60 \cdot 30$$

$$S = 60 \cdot 15$$

$$S = 900 //$$

$$\begin{array}{r} 60 \\ \underline{15} \\ 300 \\ 600 \\ \hline 900 \end{array}$$

Leubando:
o n-ésimo ímpar é

$$2n - 1$$

1°	1
2°	3
3°	5
4°	7