

COMBINATORIA

Problema 82:

Calcula m para que se verifique:

$$V_{m,2} + V_{(m-2),2} + V_{(m-4),2} = 98$$

Solución Problema 82:

$$V_{m,2} + V_{(m-2),2} + V_{(m-4),2} = 98$$

$$m \cdot (m - 1) + (m - 2) \cdot (m - 3) + (m - 4)(m - 5) = 98$$

$$m^2 - m + m^2 - 2m - 3m + 6 + m^2 - 4m - 5m + 20 = 98$$

$$3m^2 - 15m + 26 = 98$$

$$3m^2 - 15m + 26 - 98 = 0$$

$$3m^2 - 15m - 72 = 0$$

$$m^2 - 5m - 24 = 0$$

$$m = \frac{5 \pm \sqrt{25 + 96}}{2} = \frac{5 \pm \sqrt{121}}{2} = \frac{5 \pm 11}{2}$$

$$m_1 = \frac{5 + 11}{2} = 8$$

$$m_2 = \frac{5 - 11}{2} = -3$$