

Soluzioni Esercizi notevoli

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Foglio 1

Esercizio 1

$$y_i = ax_i + b = x_i - 22 \quad s_x^2 = s_y^2 = \frac{1}{n-1} \left(\sum_{i=1}^n y_i^2 - n\bar{y}^2 \right) = \frac{1}{8} 203 - 9 (35/9)^2 = 8.36$$

Esercizio 2

$$R = \frac{\sum_{i=1}^{10} (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^{10} (x_i - \bar{x})^2 \cdot \sum_{i=1}^{10} (y_i - \bar{y})^2}}$$

$$\bar{x} = 15.3 \quad \bar{y} = 70.3, \quad \sum_{i=1}^{10} (x_i - \bar{x})^2 = 82.1, \quad \sum_{i=1}^{10} (y_i - \bar{y})^2 = 488.1$$

$$\sum_{i=1}^{10} (x_i - \bar{x})(y_i - \bar{y}) = -152.9$$

$$R = -0.7638$$

Esercizio 3

a) $5!$ b) $11! / (4! 2! 4!)$

Esercizio 4

$$9! / (4! 3! 2!)$$

Esercizio 5

$$(x+y)^3 = \binom{3}{0} x^0 y^3 + \binom{3}{1} x^1 y^2 + \binom{3}{2} x^2 y + \binom{3}{3} x^3 y^0$$

Esercizio 6

$$(x_1 + x_2 + x_3)^2 = \binom{2}{2,0,0} x_1^2 x_2^0 x_3^0 + \binom{2}{0,2,0} x_1^0 x_2^2 x_3^0 + \binom{2}{0,0,2} x_1^0 x_2^0 x_3^2 + \\ + \binom{2}{1,1,0} x_1^1 x_2^1 x_3^0 + \binom{2}{1,0,1} x_1^1 x_2^0 x_3^1 + \binom{2}{0,1,1} x_1^0 x_2^1 x_3^1$$

Esercizio 7

$$25^2 \cdot 10^5$$

Esercizio 8

$$25 \cdot 25 \cdot 10^4 \cdot 8 \cdot 7 \cdot 6$$

Esercizio 9

$$6^4$$

Esercizio 10

a) $4!$

b) 4