→ Renan Carlos Loewenstein / /
→ Lista sobre combinatória

Exercícios

(21) $6 \cdot 6 \cdot 6 \cdot 6 \cdot 6 \cdot 6 \rightarrow 6^6 = 46656$ resultados

(25) $10 \cdot 12 + 5 \cdot 8 = 160$ percursos

(32)
$$\frac{n(n+1)}{2} + n + 1 = \frac{(n+1)(n+2)}{2}$$

(23) a) $2 \cdot 2 \cdot 2 = 8$ letras

b) $2 + 2^2 + 2^3 + \ldots + 2^8 \rightarrow \frac{2 \cdot (2^8 - 1)}{2 - 1} = 510$

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(45) $A_{6,2} = \frac{6!}{(6-2)!} = 30$ maneiras

(49) $A_{4,4} = \frac{4!}{(4-4)!} = 24$

(57) $A_{4,2} \cdot A_{3,2} \rightarrow \frac{4!}{(4-2)!} \cdot \frac{3!}{(3-2)!} = 12 \cdot 6 = 72$

(81) $P_7 = 7! \rightarrow 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1 = 5040$

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(132) $A_{x,3} - 6 \cdot C_{x,2} = 0$

$\hookrightarrow A_{x,3} = 6 \cdot C_{x,2} \rightarrow \frac{x!}{(x-3)!} = 6 \cdot \frac{x!}{2!(x-2)!}$

$\hookrightarrow 1 = \frac{3}{x-2} \rightarrow x = 5$

(143) $C_{5,3} \rightarrow \frac{5!}{3!(5-3)!} = 10$

(157) $[D, G, G, G, G] \rightarrow C_{3,1} \cdot C_{5,4} = 15$
$[D, D, G, G, G] \rightarrow C_{3,2} \cdot C_{5,3} = 30$
$[D, D, D, G, G] \rightarrow C_{3,3} \cdot C_{5,2} = 10$

$15 + 30 + 10 = 55$

(166) $[P, P, P, P, B, B, B] \rightarrow C_{6,4} \cdot C_{10,3} = 1800$
$[P, P, P, P, P, B, B] \rightarrow C_{6,5} \cdot C_{10,2} = 270$
$[P, P, P, P, P, P, B] \rightarrow C_{6,6} \cdot C_{10,1} = 10$

$1800 + 270 + 10 = 2080$ modos

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(205) $n = 5 \quad n_1 = 3 \quad n_2 = 2$

$P_5^{3,2} = 5!/3!2! = 10$ possibilidades

(198) $n = 12 \quad n_1 = 8 \quad n_2 = 4$

$P_{12}^{(8,4)} = 12!/8!4! = 495$ formas

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199) $n = 6 \quad n1 = 2 \quad n2 = 3$

$P_6^{(2,3)} = 6!/2!3! = 60$

200) $n = 6 \quad n1 = 2 \quad n2 = 4$

$P_6^{(2,4)} = 6!/2!4! = 15$ possibilidades

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213) $\binom{10}{7} \cdot \binom{3}{3} = 120$

215) $\binom{6}{4} + \binom{6}{4} + \binom{6}{2}\binom{6}{2} = 255$

216) $\binom{12}{4}\binom{8}{5}\binom{3}{3} = 27720$

218) $\binom{52}{13}\binom{39}{13}\binom{26}{13}\binom{13}{13} = \frac{52!}{(13!)^4}$

219) $\binom{20}{5}\binom{15}{5}\binom{10}{5}\binom{5}{5} = \frac{20!}{(5!)^4}$ maneiras

223) $\dfrac{\binom{15}{5}\binom{10}{5}\binom{5}{5}}{3!} = 15!/(5!)^3 \cdot 6$

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