data

Tarefa básica

1) $\binom{8}{3} = \frac{8!}{3!5!} = \frac{8.7.6.5!}{3.2.1\ 5!} = \frac{336}{6} = 56.$

Letra B

2) $\binom{200}{198} = \frac{200!}{198!2!} = \frac{200.199.198!}{198!\ 2.1} = \frac{39800}{2} = 19900$

Letra A

3) $\frac{(n-1)!}{2!(n-1-2)!} = \frac{(n+1)!}{4!(n+1-4)!}$

$\frac{(n-1)!\,4!\,(n-3)!}{2!\,(n-3)!} = (n+1)!$

$\frac{(n-1)!\,4.3.2!\,(n-3)!}{2!\,(n-3)!} = (n+1)\,n\,(n-1)!$

$\frac{(n+1)!\,12}{(n+1)!} = (n+1)\,n$

$n^2 + n = 12$

$n^2 + n - 12 = 0$

$\Delta = 1 - 48$

$\Delta = 49$

$x = \frac{-1 \pm 7}{2}$ — " $= (-1-7)/2 = -4$ → não pode

— " $= (-1+7)/2 = 3$

4) $\binom{20}{13} + \binom{20}{14}$

Letra C

Soma → $\binom{21}{14}$

Complementares → $\binom{21}{21-14} = \binom{21}{7}$

data

5) $\binom{N}{0} + \binom{N}{1} + \binom{N}{2} + \binom{N}{3} + \binom{N}{4} \dots$

Soma $\rightarrow 2^N$

6-a) $\binom{10}{P}$ Soma $\rightarrow 2^{10} = 1024$

b) $\binom{9}{P}$ soma $\rightarrow 2^{10} - \binom{10}{10} = 1023$

c) $\binom{9}{P}$ soma $\rightarrow 2^9 - \binom{9}{0} - \binom{9}{1} = 502$

d) $\binom{P}{4}$ Soma coluna 4 $\rightarrow \binom{11}{5} = \frac{11.10.9.8.7}{5.4.3.2.1} = \frac{55440}{120} = 462$

e) $\binom{P}{5}$ Soma $\rightarrow \binom{11}{6} = \frac{11.10.9.8.7.6}{6.5.4.3.2.1} = \frac{332640}{720} = 462$

7)