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# Coeficientes Binomiais

01) $\binom{8}{3}$ $\frac{8!}{3!(8-3)!}$ $\frac{8!}{3!5!}$ $\frac{8.7.6.\cancel{5!}}{3!\cancel{5!}}$ $\frac{336}{6}=56$ resposta letra B

02) $\binom{200}{198}$ $\frac{200!}{198!(200-198)!}$ $\frac{200!}{198!2!}$ $\frac{200.199.\cancel{198!}}{\cancel{198!}.2!}$ $\frac{39800}{2}=19900$ resposta letra A

03) $\binom{n-1}{2}=\binom{n+1}{4}$ $\frac{(n-1)!}{2!}=\frac{(n+1)!}{4!}$ $\frac{(n-1)!}{2!}=\frac{(n+1)!}{4.3.\cancel{2!}}$ $\frac{(n-1).(n+1)}{12!}$

$n^2+n\cdot n-1$ $n^2-1$ $n=\sqrt{1}$ $n=1$

$2=4$ $4-2=2$ $V=\{1,2,3\}$ ← resposta

04) $\binom{20}{13}+\binom{20}{14}=\left(\frac{20}{13}\right)/14+\left(\frac{20}{14}\right)/13=\left(\frac{(20.14)+(20.13)}{mmc\ 13\ e\ 14}\right)$

| | |
|---|---|
| 14, 13 | 2 |
| 7, 13 | 7 |
| 1, 13 | 13 |
| 1, 1 | 1 |

$mmc=2.7.13=182$ $\left(\frac{280+260}{182}\right)=\frac{540}{182}/25=\frac{21}{7}$

resposta letra C

05) $\frac{(n+1)!-n!}{(n-1)!}=\frac{(n+1)n(n-1)!-n(n-1)!}{(n-1)!}=\frac{n(n-1)!(n+1-1)}{(n-1)!}=n^2$

06.a) $\sum_{p=0}^{10}\binom{10}{p}$ $\binom{10}{0}+\binom{10}{1}\binom{10}{2}\binom{10}{3}\cdots\binom{10}{10}$ $2^{10}=1{,}024$

06.b) $\sum_{p=0}^{9}\binom{10}{p}$ $\binom{10}{0}+\binom{10}{1}\binom{10}{2}\binom{10}{3}\cdots\binom{10}{9}$ $2^{10}-\frac{10}{10}=1024-1=1023$

06 c) $\sum_{p=2}^{9}\binom{9}{p}$ $\binom{9}{2}\binom{9}{3}\binom{9}{4}\binom{9}{5}\cdots\binom{9}{9}=2^9-\frac{9}{0}-\frac{9}{1}=512-1-9=502$

07) $\sum_{k=0}^{m}\binom{m}{k}=512$ $\frac{m}{0}\ \frac{m}{1}\ \frac{m}{2}\ \frac{m}{m}$ $512=2^9$ $2^N$ resposta

$m=9$ letra E