Kauê Dias

1- $\binom{8}{3} = \frac{8!}{3!(8-3)!} = \frac{336}{6} = 56$ = Alternativa B

2- $\binom{200}{198} = \frac{200!}{198!(200-198)!} = \frac{39800}{2} = 19900$ = Alternativa A

3- $\binom{n-1}{2} = \binom{n+1}{4}$

1º = $\frac{(n-1)!}{2!(n-1-2)} = \frac{(n+1)!}{4!(n+1-4)!} = \frac{(n-1)!\,4.3.\cancel{2}!}{\cancel{2}!} = (n+1).n.(n+1)$

$12 = \frac{(n^2+n).\cancel{(n-1)!}}{\cancel{(n-1)!}} = n^2+n-12=0$

$n' = -4$ X

$n'' = 3$ ✓

2º $\binom{n-1}{2} = \binom{n+1}{4} = 0$

$n-1 < 2$ $\quad n+1 < 4$

$n < K$ $\quad n < 3$ $\quad n < 3$

$n < 3$

$V = \{1, 2, 3\}$

4- $\binom{20}{13} + \binom{20}{14} = \binom{20}{13} + \binom{20}{14} = \binom{20}{14} = \binom{21}{14} = \binom{21}{14-21} = \binom{21}{7}$

Alternativa C

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5- $\binom{n}{0}+\binom{n}{1}+\binom{n}{2}+\dots+\binom{n}{n}=2^n$

6-

a) $\sum_{p=0}^{10}\binom{10}{p}=\binom{10}{0}+\dots+\binom{10}{10}=2^{10}=1024$

B) $\binom{10}{p}=\binom{10}{0}+\dots+\binom{10}{9}=2^{10}-\frac{10}{10}=1023$

c) $\binom{9}{p}=\binom{9}{2}+\binom{9}{3}+\dots+\binom{9}{9}=2^9-\binom{9}{1}-\binom{9}{0}=502$

D) $\binom{p}{4}=\binom{4}{4}+\binom{5}{4}\dots+\binom{10}{4}=\binom{11}{5}=\frac{11!}{5!(11-5)!}$

$\frac{924}{2}=462$

e) $\binom{p}{5}=\binom{5}{5}+\dots\binom{10}{5}=\binom{11}{6}=\frac{11!}{6!(11-6)!}=\frac{924}{2}=462$

7- $\binom{m}{k}=512$ $\binom{m}{k}=\binom{m}{0}+\dots+\binom{m}{m}=512$

$2^m=512$
$2^m=2^9$ ALternativa
$m=9$ E