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Teorema do Binômio

01) $(1+2x^2)^6$

$\binom{6}{K} 1^{6-k} \cdot (2x^2) = \binom{6}{K} 2^{2k} \cdot x^{2k}$ $K=0,1,2...,6.$

$2k=8$ $\dfrac{8}{2}=K$ $K=4$ $\binom{6}{4} 2^4 \cdot x^8 = \dfrac{6!}{4! \cdot 2!} \cdot 16 \cdot x^8 = 240 x^8$ resposta letra C

02) $(14x - 13y)^{237}$ $x=1$ $y=1$ $(14 \cdot 1 - 13 \cdot 1)^{237}$ $(14-13)^{237}$
$(1)^{237} = 1$ resposta letra B

03) $(x+a)^{11} = 1.386 x^5$

$\binom{11}{K} x^{11-k} \cdot a^k = 1.386 x^5$ $11-k=5$ $K=6$

$\binom{11}{6} x^{11-6} \cdot a^6 = 1386 x^5$ $\binom{11}{6} x^5 \cdot a^6 = 1386 x^5$ $\dfrac{11!}{6!5!}$ $a^6 = 1386$

$\dfrac{11 \cdot 10 \cdot 9 \cdot 8 \cdot 7 \cdot 6!}{6! \cdot 5!}$ $\dfrac{55440}{120}$ $a6 = 1386$ $462 a^6 = 1386$ $a^6 = \dfrac{1386}{462}$

$a^6 = 3$ $a = \sqrt[6]{3}$ resposta letra A

04. $\left(x+\dfrac{1}{x^2}\right)^9$ $\binom{9}{K} x^{9-k} \cdot \left(1/x^2\right)^k = 9$ $9-k-1/k^2$ $9 = \dfrac{1}{k^2}$ $\sqrt{9} = 3$

$k = 3$ $\binom{9}{3}$ resposta letra D

07. $(2x+y)^5$ $x=1$ $y=1$ $(2+1)^5 = (3)^5 = 243$
resposta letra C