

INSTITUTO FEDERAL

São Paulo

Câmpus Cubatão

DOCENTE: LUCIANO ANDRE CARVALHO REIS

DISCENTE: GABRIEL ALVES DE OLIVEIRA

SALA: 317

MATEMATICA

SEMANA 11

$$(1) (3 + 2x^2)^6 \quad x^8 = ?$$

$$\binom{6}{k} 3^{6-k} \cdot (2x^2)^k \rightarrow \binom{6}{k} 2^k x^{2k} \quad \begin{array}{l} 2k = 8 \\ k = \frac{8}{2} = 4 \end{array}$$

$$\binom{6}{4} 2^4 x^8 = \frac{6!}{4!(6-4)!} 2^4 x^8 = \frac{6!}{4!2!} 16x^8 = 15 \cdot 16x^8 = 240x^8$$

$R: (C)$

$$(2) (14x - 13y)^{237}$$

$$50x + 2y = 1$$

$$\begin{array}{l} (14x - 13y)^{237} \\ (14 - 13)^{237} \\ 1^{237} = 1 \end{array}$$

$R: (B)$

$$(3) (x + a)^{11} = 1386x^5, \quad a = ?$$

$$\binom{11}{k} x^{11-k} a^k = 1386x^5 \quad \begin{array}{l} 11-k=5 \\ k=6 \end{array}$$

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

$$\frac{11!}{6!5!} = \frac{11 \cdot 10 \cdot 9 \cdot 8 \cdot 7 \cdot 6}{5 \cdot 4 \cdot 3 \cdot 2 \cdot 1} a^6 = 1386$$

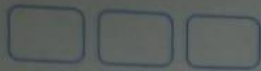
$$\frac{55440}{320} a^6 = 1386 \rightarrow 462a^6 = 1386$$

$$a^6 = \frac{1386}{462}$$

$$a^6 = 3$$

$$a = \sqrt[6]{3}$$

$R: (A)$



DOM	SEG	TER	QUA	QUI	SEX	SAB
DOM	LUN	MAR	MEI	JUL	VII	SAB

$$(4) \left(x + \frac{1}{x^2}\right)^9 = \sum_{k=0}^9 \binom{9}{k} x^{9-k} \left(\frac{1}{x^2}\right)^k$$

$$\binom{9}{k} x^{9-k} x^{-2k} = \binom{9}{k} x^{9-3k}$$
$$9-3k=0$$
$$-3k=-9$$
$$k=3$$

$R: (D)$

$$k=3 = \binom{9}{3}$$

(5) Se $n=9$ acaba criando respostas independentes, assim é preciso ser divisível por 3

$R: (C)$

$$(6) K = \left(3x^2 + \frac{2}{x^2}\right)^5 = (243x^{15} + 810x^{10} + 1080x^5 + \frac{240}{x^5} + \frac{32}{x^{10}})$$
$$= (243x^{15} + 810x^{10} + 1080x^5 + 720 + \frac{240}{x^5} + \frac{32}{x^{10}}) - (243x^{15} + 810x^{10} + 1080x^5 + \frac{240}{x^5} + \frac{32}{x^{10}})$$
$$= 243x^{15} + 810x^{10} + 1080x^5 + 720 + \frac{240}{x^5} + \frac{32}{x^{10}} - 243x^{15} - 810x^{10} - 1080x^5 - \frac{240}{x^5} - \frac{32}{x^{10}} = 720$$

$R: (E)$

$$(7) (2x+y)^5 = \binom{5}{0} 2^5 x^5 y^0 + \binom{5}{1} 2^4 x^4 y^1 + \binom{5}{2} 2^3 x^3 y^2 + \dots + \binom{5}{5} 2^0 x^0 y^5$$

$$\binom{5}{0} 2^5 + \binom{5}{1} 2^4 + \binom{5}{2} 2^3 + \binom{5}{3} 2^2 + \binom{5}{4} 2^1 + \binom{5}{5} 2^0$$

$$2^5 + 5 \cdot 2^4 + 10 \cdot 2^3 + 10 \cdot 2^2 + 5 \cdot 2^1 + 1 \cdot 2^0 = 32 + 80 + 80 + 40 + 10 + 1 = 243$$

$R: (C)$

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