

Евотута 16

2. $P(x) = 2x^3 - x^2 - 3x$

а) $P(-1) = 2 \cdot (-1)^3 - (-1)^2 - 3(-1)$

$$P(-1) = -2 - 1 + 3 = 0$$

То -1
Р, 1а!

б) $P(1) = 2 \cdot 1^3 - 1^2 - 3$

$$P(1) = 2 - 1 - 3 = 1 - 3 = -2$$

Див ани р, 1а.

5. $P(x) = ax^3 - 4ax^2 - 3x + B - 1$

$P(0) = 2$ кан exu p, 1a $\text{to} -1$

$$P(0) = B - 1 = 2$$

$$\underline{\underline{B = 3}}$$

$$P(-1) = 0$$

$$P(-1) = a^2(-1) - 4a + 3 + B - 1 = 0$$

$$-a^2 - 4a + 2 + B = 0$$

$$\textcircled{a = -5}$$

$$\textcircled{a = 7} \quad a^2 - 4a + 5 = 0$$

7. $P(x) = 3x - 2$

$$Q(x) = x^2 - x$$

$$(1) \quad P(x) + Q(x) = 3x - 2 + x^2 - x = x^2 + 2x - 2$$

$$(2) \quad 2P(x) - Q(x) = 2(3x - 2) - (x^2 - x) =$$

$$= 6x - 4 - x^2 + x$$

$$= -x^2 + 7x - 4$$

$$(3) \quad P(x)Q(x) = (3x - 2)(x^2 - x) =$$

$$= 3x^3 - 3x^2 - 2x^2 + 2x$$

$$= 3x^3 - 5x^2 + 2x$$

13. $P(x) = (\lambda + 1)x^2 - (\lambda^2 + \lambda)x + \lambda^2 + 3\lambda + 2$

Мn δενικω.

Προτι $\lambda + 1 = 0$ και $\lambda^2 + \lambda = 0$
 $\lambda(\lambda + 1) = 0$
 $\lambda = 0$ ή $\lambda = -1$
και $\lambda^2 + 3\lambda + 2 = 0$

$\lambda = -2$ $\lambda = -1$

23. (a) $P(x) = (\lambda^2 - 3\lambda + 2)x^3 + (\lambda^2 - \lambda)x + \lambda + 1$

$$\rightarrow \lambda^2 - 3\lambda + 2 = 0$$

$$\lambda = 1 \quad \lambda = 2$$

1. Av $\lambda = 1$ $\text{torc } P(x) = 0$ for cxu.

2. Av $\lambda = 2$ $\text{torc } P(x) = 2x - 1$ 100

3. Av $\lambda \neq 1, \lambda \neq 2$ 300 BwDps

Βασικη Αρχη

Δυο πολωνυμα ειναι ισα
οταν εχων ιδιο βαθμο
και ιδιους συντελεστες.

18. $2x^3 - x^2 - 6x + 3 = (x^2 - 3)(ax + b)$

$$2x^3 - x^2 - 6x + 3 = ax^3 + bx^2 - 3ax - 3b$$

$$a = 2$$

$$-1 = b$$

$$-6 = -3a$$

$$3 = -3b$$



$$19. \quad x^3 - 7x + 6 = (ax^2 + bx + c)(x - 1)$$

$$x^3 - 7x + 6 = ax^3 - ax^2 + bx^2 - bx + cx - c$$

$$x^3 - 7x + 6 = ax^3 + (-a + b)x^2 + (-b + c)x - c$$

$$1 = a$$

$$0 = -a + b$$

$$-7 = -b + c$$

$$6 = -c$$

$$c = -6$$

$$0 = -1 + b$$

$$b = 1$$

20. $P(x) = (x^2 - x) \cdot x - x^3 + 1$

α) 100 Βαθμω

$$\rightarrow x^2 - x = 0$$

$$x(x-1) = 0$$

$$x=0 \quad \text{ή} \quad x=1$$

Αν $x \neq 0$ και $x \neq 1$ τότε

είναι 100 Βαθμω.

β) Μηδενικών Βαθμω $\Rightarrow$ σταθμεύω

Αντίθετα $x^2 - x = 0$ και $-x^3 + 1 \neq 0$

$$(x=0) \quad (x=1)$$

$$x^3 \neq 1$$

$$(x \neq 1)$$

$$\underline{\underline{x=0}}$$

· ⑧ Για να μην ορίσει βαθμ/

πριν το λήξει να μας

πυδώσω

$$\lambda = 1$$

$$24. \textcircled{B} (x-1) p(x) = 2x^3 - x^2 - 2x + 1$$

$$(x-1)(ax^2 + bx + c) = 2x^3 - x^2 - 2x + 1$$

$$ax^3 + bx^2 + cx - ax^2 - bx - c = 2x^3 - x^2 - 2x + 1$$

$$ax^3 + (b-a)x^2 + (c-b)x - c = 2x^3 - x^2 - 2x + 1$$

$$\textcircled{a=2}$$

$$b-a = -1 \quad \rightarrow b-2 = -1$$

$$\textcircled{b=1}$$

$$c-b = -2 \quad \Rightarrow c-1 = -2$$

$$\textcircled{c=-1}$$

$$p(x) = 2x^2 + x - 1$$


Διαίρεση πολυωνύμων

1. ⑥ $(3x^2+2) : (x-1)$

$$\begin{array}{r|l} 3x^2+2 & x-1 \\ - (3x^2-3x) & \\ \hline 3x+2 & \\ - (3x-3) & \\ \hline 5 & \end{array}$$

$$3x^2 = (x-1)(3x+3) + 5$$

$$\begin{array}{r|l} ⑧ \quad 3x-2 & x-1 \\ - (3x-3) & \\ \hline 1 & \end{array}$$

$$3x-2 = 3(x-1) + 1$$

⑦ $(3x^3+3x^2-x+1) : (3x^2-1)$

$$\begin{array}{r|l} 3x^3+3x^2-x+1 & 3x^2-1 \\ - (3x^3-x) & \\ \hline 3x^2+1 & \\ - (3x^2-1) & \\ \hline 2 & \end{array}$$

$$3x^3+3x^2-x+1 = (3x^2-1)(x+1) + 2$$