

8. Ostatak pri deljenju polinoma  $p(x)$  sa  $x + 1$  je 2, sa  $x - 1$  je 3, a sa  $x - 2$  je  $-1$ . Koliki je ostatak pri deljenju polinoma  $p(x)$  sa  $(x + 1)(x - 1)(x - 2)$ ?

$$\frac{p(x)}{x+1}$$

$$p(-1) = 2$$

$$\frac{p(x)}{x-1}$$

$$p(1) = 3$$

$$\frac{p(x)}{x-2}$$

$$p(2) = -1$$

$$\boxed{\frac{p(x)}{x-a} = p(a)}$$

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

$$r(x)$$

$$\deg(r(x)) < \deg((x+1)(x-1)(x-2)) = 3$$

$$r(x) = ax^2 + bx + c$$

$$p(x) = q(x) \cancel{(x+1)} \cancel{(x-1)} (x-2) + ax^2 + bx + c$$

$$p(-1) = a - b + c \Rightarrow a - b + c = 2$$

$$p(1) = a + b + c \Rightarrow a + b + c = 3$$

$$p(2) = 4a + 2b + c \Rightarrow 4a + 2b + c = -1$$

$$2b = 1 \quad b = \frac{1}{2}$$

$$\begin{aligned} a + c &= 2 \\ 4a + c &= -2 \quad -1 \\ \hline 3a &= -4 \quad a = -\frac{4}{3} \\ c &= \frac{10}{3} \end{aligned}$$

$$r(x) = -\frac{4}{3}x^2 + \frac{1}{2}x + \frac{10}{3}$$

$$11.2 \quad p(x) = x^5 - 6x^3 + 6x^2 - 7x + 6$$

$$x - a$$

$$a \overline{a}$$

$$p|6 \Rightarrow p \in \{\pm 1, \pm 2, \pm 3, \pm 6\} \quad \left. \vphantom{p|6} \right\} \frac{p}{2} \in \{\pm 1, \pm 2, \pm 3, \pm 6\}$$

$$q|1 \Rightarrow q \in \{1\}$$

Иные возможные  $p(x)$  с  $1, 2, -3, \pm i$

	1	0	-6	6	-7	6
1	1	1	-5	1	-6	0
-1	1	2	-3	-2	-8	
-1	1	0	-5	6	-42	
2	1	3	1	3	0	
-2	1	1	-1	5		
-3	1	0	1	0		

$x^2 + 1$   
 $x^2 + 1 = 0$   
 $x^2 = -1$   
 $x = \pm i$

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

на  $\mathbb{C}$

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

на  $\mathbb{R}$