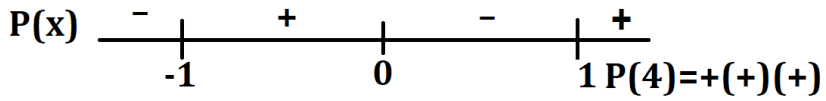
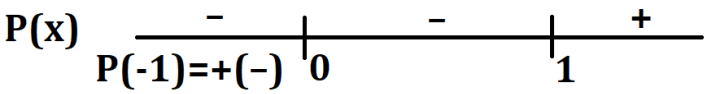
Stanovte znaménka mnohočlenů

(definičním oborem polynomu jsou všechna reálná čísla)

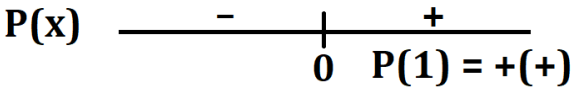
1. $P(x) = x^3 - x = x \cdot (x+1) \cdot (x-1)$



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

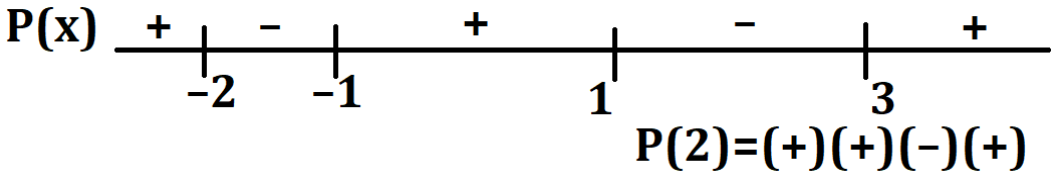


3. $P(x) = x^7 + 2x^5 + x^3 = x^3 \cdot (x^2+1)^2$



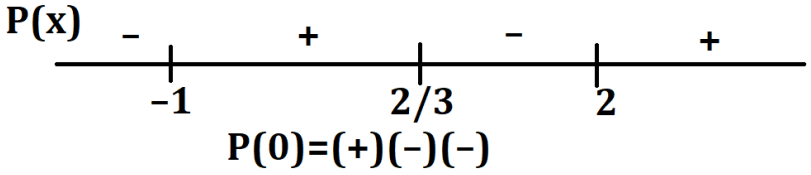
4. $P(x) = x^4 - x^3 - 7x^2 + x + 6 = (x-1) \cdot (x+1) \cdot (x-3) \cdot (x+2)$

možné (racionální) kořeny: $\pm 1; \pm 2; \pm 3; \pm 6$



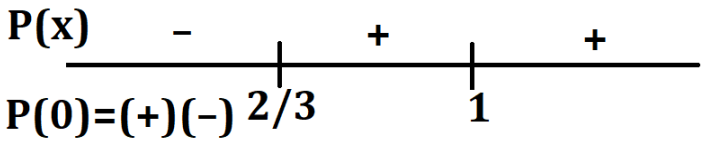
5. $P(x) = 3x^3 - 5x^2 - 4x + 4 = (x+1) \cdot (x-2) \cdot (3x-2)$

možné (racionální) kořeny: $\pm 1; \pm 2; \pm 4; \pm\frac{1}{3}; \pm\frac{2}{3}; \pm\frac{4}{3}$



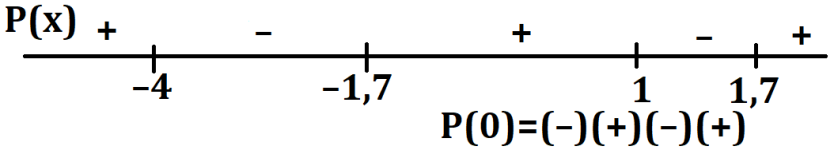
6. $P(x) = 3x^3 - 8x^2 + 7x - 2 = (x-1)^2 \cdot (3x-2)$

možné (racionální) kořeny: $\pm 1; \pm 2; \pm\frac{1}{3}; \pm\frac{2}{3}$



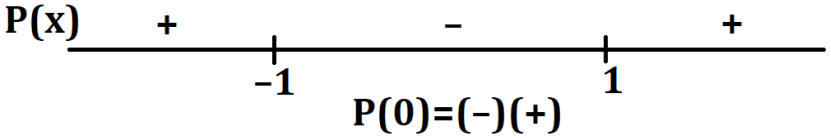
7. $P(x) = x^4 + 3x^3 - 7x^2 - 9x + 12 = (x-1) \cdot (x+4) \cdot (x-\sqrt{3}) \cdot (x+\sqrt{3})$

když $\sqrt{3} \doteq 1,7$ možné (racionální) kořeny: $\pm 1; \pm 2; \pm 3; \pm 4; \pm 6; \pm 12$



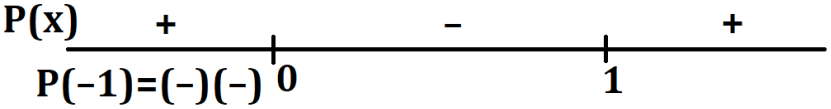
8. $P(x) = x^4 - 2x^3 + 2x - 1 = (x-1)^3 \cdot (x+1)$

možné (racionální) kořeny: ± 1



9. $P(x) = 2x^4 - x^3 + 2x^2 - 3x = x \cdot (2x^3 - x^2 + 2x - 3) = x \cdot (x-1) \cdot (\underbrace{2x^2 + x + 3}_{>0})$

možné (racionální) kořeny závorky: $\pm 1; \pm 3; \pm\frac{1}{2}; \pm\frac{3}{2}$



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

možné (racionální) kořeny: $\pm 1; \pm 2; \pm\frac{1}{2}$