

Esempio di riduzione in fratti semplici

> restart;

> P := 1+s^4;

$$P := 1 + s^4$$

> Q := (s-2)^2*(s-3)^3 ;

$$Q := (s - 2)^2 (s - 3)^3$$

> R := A/(s-2)+B/(s-2)^2+C/(s-3)+D1/(s-3)^2+E/(s-3)^3;

$$R := \frac{A}{s - 2} + \frac{B}{(s - 2)^2} + \frac{C}{s - 3} + \frac{D1}{(s - 3)^2} + \frac{E}{(s - 3)^3}$$

> eq := simplify(P = R*Q) ;

$$\begin{aligned} eq := 1 + s^4 = & A s^4 - 11 A s^3 + 45 A s^2 - 81 A s + 54 A + B s^3 - 9 B s^2 + 27 B s - 27 B + C s^4 - 10 C s^3 \\ & + 37 C s^2 - 60 C s + 36 C + D1 s^3 - 7 D1 s^2 + 16 D1 s - 12 D1 + E s^2 - 4 E s + 4 E \end{aligned}$$

> B := solve(subs(s=2,eq),B);

$$B := -17$$

> E := solve(subs(s=3,eq),E);

$$E := 82$$

> Deq := diff(eq,s);

$$\begin{aligned} Deq := 4 s^3 = & 4 A s^3 - 33 A s^2 + 90 A s - 81 A - 51 s^2 + 470 s - 787 + 4 C s^3 - 30 C s^2 + 74 C s - 60 C \\ & + 3 D1 s^2 - 14 D1 s + 16 D1 \end{aligned}$$

> A := solve(subs(s=2,Deq),A) ;

$$A := -83$$

> D1 := solve(subs(s=3,Deq),D1) ;

$$D1 := -56$$

> DDeq := diff(Deq,s);

$$DDeq := 12 s^2 = -996 s^2 + 5040 s - 6216 + 12 C s^2 - 60 C s + 74 C$$

> C := solve(DDeq,C);

$$C := 84$$

> R ;

$$-\frac{83}{s - 2} - \frac{17}{(s - 2)^2} + \frac{84}{s - 3} - \frac{56}{(s - 3)^2} + \frac{82}{(s - 3)^3}$$