

$$\begin{aligned} &> eq1 := s \cdot (s + 1) \cdot (s + 3) \cdot (s + 4) + 20 \cdot s \\ &\quad eq1 := s (s + 1) (s + 3) (s + 4) + 20 s \end{aligned} \quad (1)$$

$$\begin{aligned} &> simplify(eq1) \\ &\quad s^4 + 8 s^3 + 19 s^2 + 32 s \end{aligned} \quad (2)$$

$$\begin{aligned} &> eq2 := s \cdot (s + 1) \cdot (s + 3) \cdot (s + 4) \\ &\quad eq2 := s (s + 1) (s + 3) (s + 4) \end{aligned} \quad (3)$$

$$\begin{aligned} &> simplify(expand(eq2)) \\ &\quad s^4 + 8 s^3 + 19 s^2 + 12 s \end{aligned} \quad (4)$$

$$\begin{aligned} &> simplify(expand(s \cdot (s + 2) + 10 \cdot (s + 4) \cdot (s + 10))) \\ &\quad 11 s^2 + 142 s + 400 \end{aligned} \quad (5)$$

$$\begin{aligned} &> simplify(expand(s \cdot (s + 2) + 10 \cdot (s + 4) \cdot (s + 10) - 10(s + 10))) \\ &\quad 11 s^2 + 132 s + 300 \end{aligned} \quad (6)$$

$$\begin{aligned} &> simplify\left(expand\left(\frac{10 \cdot (s + 10)}{11 s^2 + 132 \cdot s + 300 + 10(s + 10)}\right)\right) \\ &\quad \frac{10 s + 100}{11 s^2 + 142 s + 400} \end{aligned} \quad (7)$$

$$\begin{aligned} &> ex := 1 + \frac{6}{s + 4} + \frac{18}{s + 4} + \frac{3}{s \cdot (s + 4)} + \frac{3}{s + 4} \\ &\quad ex := 1 + \frac{27}{s + 4} + \frac{3}{s (s + 4)} \end{aligned} \quad (8)$$

$$\begin{aligned} &> delt := simplify(expand(ex)) \\ &\quad delt := \frac{s^2 + 31 s + 3}{s (s + 4)} \end{aligned} \quad (9)$$

$$\begin{aligned} &> simplify\left(expand\left(-\frac{3}{s + 4} + \frac{3}{s \cdot (s + 4)}\right)\right) \\ &\quad \frac{3 s + 3}{s^2 + 31 s + 3} \end{aligned} \quad (10)$$

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