

$$\frac{20}{s(s+5)^2+1975} = \frac{A}{s} + \frac{Bs+C}{(s+5)^2+1975}$$

Multiply through by $s(s+5)^2+1975$

$$= 20 = A(s+5)^2+1975 + (Bs+C)s$$

$$= A(s^2+10s+25) + 1975 + Bs^2 + Cs$$

$$20 = As^2 + 10As + 25A + 1975 + Bs^2 + Cs$$

$$\therefore 20 = (A+B)s^2 + 10As + 25A + 1975 + Cs \quad (2)$$

let $s=0$ then $20 = 25A + 1975$

$$\therefore \frac{-1955}{25} = A = -78.2$$

coefficients of s^2 equated $0 = A+B$
 $\therefore B = 78.2$

coefficients of s equated $0 = 10A + C$

$$\therefore -10A = C$$

$$\therefore C = 782$$

Result

$$\frac{-78.2}{s} + \frac{(78.2)s + 782}{(s+5)^2 + 1975}$$