

Maxima 5.44.0 <http://maxima.sourceforge.net>
 using Lisp SBCL 2.0.0
 Distributed under the GNU Public License. See the file COPYING.
 Dedicated to the memory of William Schelter.
 The function bug_report() provides bug reporting information.

```
(%i1) j:%i
(%o1) i
(%i2) P(s):=1/(s-1)

(%o2)  $P(s) := \frac{1}{s-1}$ 
(%i3) C(s):=k
(%o3)  $C(s) := k$ 
(%i4) W[1](s):=1/(s+1)

(%o4)  $W_1(s) := \frac{1}{s+1}$ 
(%i5) W[2](s):=2/(s+10)
(%o5)  $W_2(s) := \frac{2}{s+10}$ 
(%i6) L(s):=ratsimp(P(s)*C(s))$
      L(s)
(%o7)  $\frac{k}{s-1}$ 
(%i8) S(s):=ratsimp(1/(1+L(s)))$
      S(s)
(%o9)  $\frac{s-1}{s+k-1}$ 
(%i10) T(s):=ratsimp(L(s)*S(s))$
       T(s)
(%o11)  $\frac{k}{s+k-1}$ 
(%i12) W2T(s):=ratsimp(W[2](s)*T(s))$
       W2T(s)
(%o13)  $\frac{2k}{s^2 + (k+9)s + 10k - 10}$ 
(%i14) W1S(s):=ratsimp(W[1](s)*S(s))$
       W1S(s)
(%o15)  $\frac{s-1}{s^2 + ks + k - 1}$ 
(%i16) assume(k>1)

(%o16)  $[k > 1]$ 
(%i17) a2:abs(W2T(0))
(%o17)  $\frac{k}{5k-5}$ 
```

```
(%i18) a1:abs(W1S(0))
```

```
(%o18)  $\frac{1}{k-1}$ 
```

```
(%i20) a[min]:ratsimp(a1/(1-2*a2))
```

```
(%o20)  $\frac{5}{3k-5}$ 
```

```
(%i21)
```