

EXAMPLE 2.11

C[crp]:= (t) -> C[gl] + (C[rub] - C[gl]) * (1 - exp(-t/tau));

$$C_{crp} := t \rightarrow C_{gl} + (C_{rub} - C_{gl}) \left(1 - e^{-\left(\frac{t}{\tau}\right)} \right)$$

p:= (t) -> R*t;

$$p := t \rightarrow R t$$

delta[radius]:= (r^2/b)*int(C[crp](t-xi)*diff(p(xi),xi), xi=0..t);

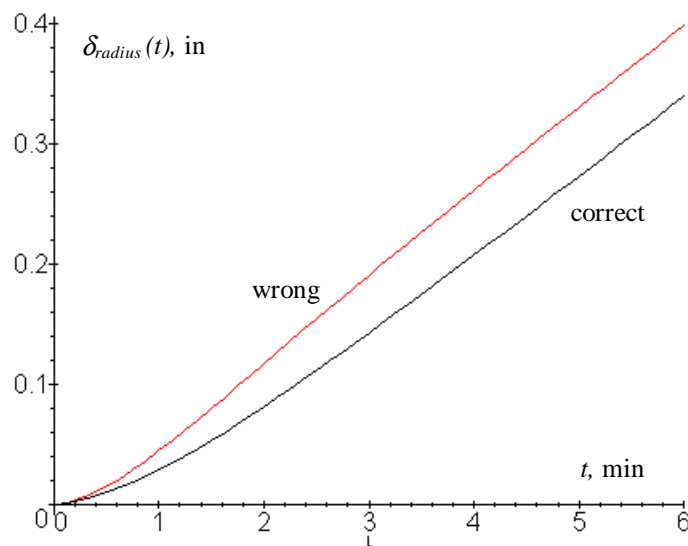
$$\delta_{radius} := \frac{r^2 \left(\left(t C_{rub} - \tau C_{rub} + \tau C_{gl} \right) R - \tau e^{-\left(\frac{t}{\tau}\right)} \left(-C_{rub} + C_{gl} \right) R \right)}{b}$$

delta[wrong]:= p(t)*r^2*C[crp](t)/b;

$$\delta_{wrong} := \frac{R t r^2 \left(C_{gl} + \left(C_{rub} - C_{gl} \right) \left(1 - e^{-\left(\frac{t}{\tau}\right)} \right) \right)}{b}$$

C[gl]:= .333e-5; C[rub]:= .333e-4; b:= 0.2; r:= 2; tau:= 1; R:= 100;

plot({delta[radius](t), delta[wrong](t)}, t=0..6);



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3.11 Mechanics of Materials

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