

```
>> P=2*10^6
```

```
P =
```

```
2000000
```

```
>> M=400
```

```
M =
```

```
400
```

```
>> F=500*10^3
```

```
F =
```

```
500000
```

```
>> ri=0.25
```

```
ri =
```

```
0.2500
```

```
>> sym t
```

ans =

t

>> xx=P*(ri+t)/t

xx =

$(2000000*t + 500000)/t$

>> yy=xx

yy =

$(2000000*t + 500000)/t$

>> zz=xx/2+F/(2*pi*t*(ri+t/2))

zz =

$(2000000*t + 500000)/(2*t) + 250000/(pi*t*(t/2 + 1/4))$

>> xy=0

xy =

0

>> yz=M*(ri+t)/((pi/2)*(ri+t)^4-ri^4)

yz =

(400*t + 100)/((pi*(t + 1/4)^4)/2 - 1/256)

>> zx=yz

zx =

(400*t + 100)/((pi*(t + 1/4)^4)/2 - 1/256)

>> vonmises=(1/sqrt(2))*sqrt(2*(yy-zz)^2+12*yz^2)

vonmises =

((6*(400*t + 100)^2)/((pi*(t + 1/4)^4)/2 - 1/256)^2 + ((2000000*t + 500000)/(2*t) - 250000/(pi*t*(t/2 + 1/4)))^2)^(1/2)

```
>> solve(vonmises-100*10^6,t)
```

```
ans =
```

```
0.0006721051839026413322699732937285117989846595302540236239253006864516349336356967  
5449567602563150825192117084414879877345037950441
```

```
0.00069447130919135156389706506236369
```

```
0.49678027403272585451694857745058
```

```
0.47334249995971586832431984568452
```

```
0.4732794176358949633706184588622
```

```
0.50314735380873675224742839337624
```

```
0.026720340320495382797740017905972
```

```
0.026657743118745870644759174622423
```

```
0.2233109655166484390803897868167322231117514299441461523505813511967537235843840830  
0108240439374200238200744477264305341545437866*i - 0.25003127558525076247955423705769
```

```
0.24996872441369751145122473308202  
- 0.22331095973389146213599568620994*i -
```

```
0.25003127558525076247955423705769  
- 0.22331096551664843908038978681673*i -
```

```
0.2233109597338914621359956862099431325903631835506026057038194507397371419145635883  
0779262276350116583990580327784753942768492688*i - 0.24996872441369751145122473308202
```

>>