Untitled

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Parte A examen parcial transferencia de calor Rafael Beltran Hernandez 20171217

[2]:
```
h = 10
k = 0.05
r = k/h
print('el radio critico de aislamiento es',r,'debido a que es un cilindro')
```

```
el radio critico de aislamiento es 0.005 debido a que es un cilindro
```

El radio critico es menor al radio nominal $r_{nominal} = 0.1$

Ejercicio Práctico

[4]:
```
import sympy as sp
l = sp.Symbol('l')
```

[6]:
```
import numpy as np
```

[16]:
```
D = 5/1000 #m
k = 240
h = 200
m = np.sqrt(4*h/(k*D))
```

[17]:
```
l = sp.Symbol('l') #longitud corregida
# Se usa la expresión tanh(mL)/(1/mL) y se encuentra la longitud en la que es␣
 ↪es igual a 1, ya que asi se acerca al valor de una aleta infitmnita
eq = 1 - m*l*sp.tanh(m*l)
```

```
---------------------------------------------------------------------------
KeyboardInterrupt                         Traceback (most recent call last)
<ipython-input-17-2fde9b7750a6> in <module>
      2 # Se usa la expresión tanh(mL)/(1/mL) y se encuentra la longitud en la␣
 ↪que es es igual a 1, ya que asi se acerca al valor de una aleta infitmnita
      3 eq = 1 - m*l*sp.tanh(m*l)
----> 4 sol= sp.solve(eq,l)
      5 print(sol)

~/anaconda3/lib/python3.7/site-packages/sympy/solvers/solvers.py in solve(f,␣
 ↪*symbols, **flags)
```

```
   1095     ␣
↪#############################################################################
   1096     if bare_f:
-> 1097         solution = _solve(f[0], *symbols, **flags)
   1098     else:
   1099         solution = _solve_system(f, symbols, **flags)

~/anaconda3/lib/python3.7/site-packages/sympy/solvers/solvers.py in _solve(f,␣
↪*symbols, **flags)
   1480         try:
   1481             if poly is None:
-> 1482                 poly = Poly(f_num)
   1483             if poly is None:
   1484                 raise ValueError('could not convert %s to Poly' % f_num)

~/anaconda3/lib/python3.7/site-packages/sympy/polys/polytools.py in __new__(cls,␣
↪rep, *gens, **args)
    160                 return cls._from_poly(rep, opt)
    161             else:
--> 162                 return cls._from_expr(rep, opt)
    163
    164     # Poly does not pass its args to Basic.__new__ to be stored in _args␣
↪so we

~/anaconda3/lib/python3.7/site-packages/sympy/polys/polytools.py in␣
↪_from_expr(cls, rep, opt)
    290         """Construct a polynomial from an expression. """
    291         rep, opt = _dict_from_expr(rep, opt)
--> 292         return cls._from_dict(rep, opt)
    293
    294     @classmethod

~/anaconda3/lib/python3.7/site-packages/sympy/polys/polytools.py in␣
↪_from_dict(cls, rep, opt)
    239                 rep[monom] = domain.convert(coeff)
    240
--> 241         return cls.new(DMP.from_dict(rep, level, domain), *gens)
    242
    243     @classmethod

~/anaconda3/lib/python3.7/site-packages/sympy/polys/polyclasses.py in␣
↪from_dict(cls, rep, lev, dom)
    274     def from_dict(cls, rep, lev, dom):
    275         """Construct and instance of ``cls`` from a ``dict``␣
↪representation. """
--> 276         return cls(dmp_from_dict(rep, lev, dom), dom, lev)
    277
    278     @classmethod
```

```
~/anaconda3/lib/python3.7/site-packages/sympy/polys/densebasic.py in␣
↪dmp_from_dict(f, u, K)
   1010
   1011         if coeff is not None:
-> 1012             h.append(dmp_from_dict(coeff, v, K))
   1013         else:
   1014             h.append(dmp_zero(v))

~/anaconda3/lib/python3.7/site-packages/sympy/polys/densebasic.py in␣
↪dmp_from_dict(f, u, K)
    990     """
    991     if not u:
--> 992         return dup_from_dict(f, K)
    993     if not f:
    994         return dmp_zero(u)

~/anaconda3/lib/python3.7/site-packages/sympy/polys/densebasic.py in␣
↪dup_from_dict(f, K)
    943
    944         for k in range(n, -1, -1):
--> 945             h.append(f.get((k,), K.zero))
    946
    947     return dup_strip(h)

KeyboardInterrupt:
```

[ ]: