Name
Huy Lai
Alex Nuccitelli
Cole Jahnke

In [12]:
```
from sympy import *
from sympy.plotting import (plot, plot_parametric)
```

1a Evaluate expression

In [2]:
```
print(sqrt(8 + 80/2.6) + exp(3.5))
```

```
39.3419462186456
```

1b Evaluate expression

In [3]:
```
print((23 + pow(45, 1/3))/(16 * .7) + log(589.006))
```

```
8.74958755825782
```

2a Evaluate variable expression

In [6]:
```
x = 4.6
y = 1.7
print((sqrt(x + y)/(pow(x - y, 2))) + 2*pow(x, 2)-x*pow(y, 2))
```

```
29.3244518525092
```

2b Evaluate variable expression and test equality

In [9]:
```
print(sqrt(pow(x, 2) + pow(y , 2)))
print(x + y)
print("The 2 expressions are not equal")
```

```
4.90407993409569
6.3
The 2 expressions are not equal
```

3a magnitudes of vectors

In [10]:
```
a = [9.1, 14.47]
b = [-5.55, 9.62]
mag_a = sqrt(a[0]**2 + a[1]**2)
```

```
mag_b = sqrt(b[0]**2 + b[1]**2)
print(mag_a, mag_b)
```

```
17.0935923667320 11.1061649546547
```

3b angle C using Law of Cosines

In [14]:

```
c_squared = (a[0] - b[0])**2 + (a[1] - b[1])**2
print(acos((mag_a**2 + mag_b**2 - c_squared)/(2 * mag_a * mag_b)))
```

```
1.08466815485090
```

3c angle C using dot product

In [16]:

```
dot_ab = (a[0] * b[0] + a[1] * b[1])
print(acos(dot_ab/(mag_a * mag_b)))
```

```
1.08466815485090
```