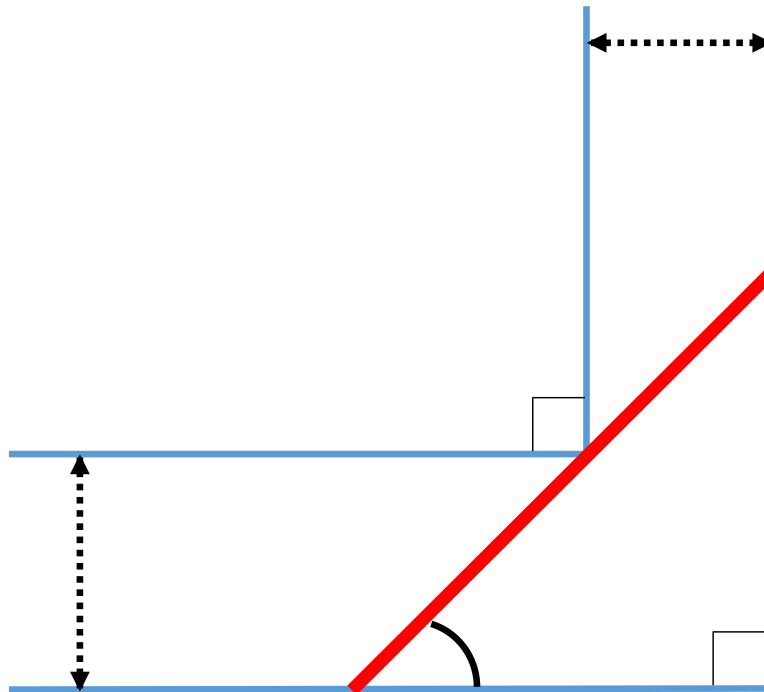


Task 10-01

- Create a Python program called **ladder_problem.py** that uses SciPy to calculate and display the maximum ladder length possible that will fit around the corner depicted on the next slide
- Additionally, using pyplot, graph the function describing the maximal ladder length as a function of (see following diagram)
- Finally, plot the point where this function has a zero rate of change
- Upload your solution to the BNL QIS101 SharePoint site

Task 10-01



What is the **maximum** length straight ladder than can fit around this corner?

Note: the ladder must maintain a **constant** length

Task 10-02

- Create a Python program called **archimedes_spiral.py** that uses SciPy to calculate and display the arc length of an Archimedes Spiral with $a=1$ as it rotates from $\theta=0$ to $\theta=2\pi$
- Using pyplot, graph that entire spiral
- Upload your solution to the BNL QIS101 SharePoint site

Task 10-03

- Create a Python program called **eulers_constant.py** that uses SciPy to numerically estimate Euler's Constant:
- Then use pyplot to superimpose a line graph of $\frac{1}{n}$ on top of a step plot of the first 50 Harmonic Numbers
- Upload your solution to the BNL QIS101 SharePoint site