The Initial Model

The initial problem is to determine the number of years to retirement based on the following info:

- Salary
- Savings rate
- Investment rate
- Desired cash

Inputs

Define the Inputs

Here I will just define the variables containing our input information. Please note that in Python, you must use decimals and not percentages. So 50% is 0.50. Typing 50% would be invalid.

[4]:
```
salary = 60000
savings_rate = 0.25
investment_rate = 0.05
desired_cash = 1500000
```

Deteriming Cash Saved

First we need to calculate the annual amount of cash saved. It is simply the savings rate multiplied by the salary.

[7]:
```
annual_cash = salary * savings_rate
annual_cash
```

[7]:
```
15000.0
```

Years to Retirement

[17]:
```
import numpy_financial as npf
```

[20]:
```
years_to_retirement = npf.nper(investment_rate, -annual_cash, 0, desired_cash)
```

[22]:
```
print(f'Martha has {years_to_retirement:.1f} years to retirement.')
```

```
Martha has 36.7 years to retirement.
```

Multiple Interest Rates