Example 1. In order to do any math we’re going to need some numbers. Numbers are different from strings.

apples = 3
print apples
oranges = apples + 1
print oranges

Example 2. Let’s try assigning some more numbers. Before you run, what do you think will print? Surprised?

apples = 1
oranges = apples
apples = 2
print apples, oranges

Example 3. Operations! We have the usual addition, subtraction, multiplication, division and exponents.

x = 5
y = 2
print x + y
print x - y
print x*y
print x/y
print x**y

x = 5.0
y = 2.0
print x + y
print x - y
print x*y
print x/y
print x**y
print (x + y)**2 - y**(0.5) + x*(y + 3)

Now we are seeing the difference between integers and floating point numbers. The computer treats integers and decimals differently. An integer can be represented exactly in the computers memory while a real number can only be stored approximately. Operations with integers are faster and exact. Sometimes you want integers, sometimes you want floats. For floats remember to put a decimal in your numbers. We can now combine numbers in complicated ways.

To change a float to an integer and an integer to a float try:
x = int(5.4)
y = float(3)
print x, y

To get the fractional part of an integer division try:
x=5
y=2
print x, "divided by", y, "is", x/y, "with remainder", x%y
print "or about", float(x)/float(y)

Example 4. If you want to do inputs with numbers you’ll need to tell the computer whether the input is an integer or float.

print "I’m your computer. Let’s get to know each other"
print "Please enter your favourite number."
your_fav=int(raw_input(">"))
print "so your favourite number is", your_fav, "eh?"
comp_fav = 7
print "my favourite number is", comp_fav

Example 5. Write a program that asks for a number and then returns the number squared and/or write a program that asks for two numbers and returns their sum and/or write a program involving numbers to do something fun.
Example 6. Quadratic Formula. Write a program that asks for values $a$, $b$ and $c$ and solves for $x$ in $ax^2 + bx + c = 0$. Check your answers with Wolfram Alpha.

Example 7. At times today we may want to have Python produce a (sudo)random number. A handy way to do this is to use the ‘randint’ command. There is a library called ‘random’ that has lots of commands about random numbers. We need to tell Python that we’re going to be using it.

```python
from random import randint
x = randint(0,10) # picks a random number between 0 and 10
print x #can the output be 0? can the output be 10?
```

Example 8. Try writing a program to use random numbers. Write a program that asks for two numbers and returns a random number between the two inputs.