```
print("Hello World")
```

```
Hello World
```

```
a=complex(2,6)
print(a)
```

```
(2+6j)
```

```
#Addition
print(22+30)
#Subtract
print(52-10)
#divide
print(5/2)
#Multiply
print(2*1)
#Modulo
e=5%2
print(e)

print(5//2)
print(3**2)
```

```
52
42
2.5
2
1
2
9
```

```
#If no of operators are taken thus their implementation is based on
precedence and associtivity like bodmas
print((5+2)*3**2-1)
```

```
62
```

```
# An operator working behind the scoreboard of a inter cohort
AlmaBetter cricket tournament, is responsible for updating the scores
and points of each team. However, the operator is currently facing a
challenge. He has been tasked with updating the total number of points
gained by Team London, but he does not possess the necessary
programming skills to complete this task. According to the
tournament's rules, teams are awarded the following points based on
the outcome of a match:
# wins: 3 points
# draws: 1 point
```

```
# losses: 0 points
# Team London has played 9 matches in this tournament. They won 6 matches, lost 2 matches and drew 1. The operator is in need of assistance o calculate the total number of points earned by Team London. As a python expert adept with knowledge of integer, floats and boolean, you an help the operator by writing a solution for the following problem.
# Vhat would your approach be?
won=int(input("Enter the won matches"))
draw=int(input("Enter draw matches"))
lose=int(input("Enter lose matches"))
match=9
total=6*won+2*lose+1*draw
print(total)
```

```
Enter the won matches3
Enter draw matches1
Enter lose matches0
19
```

```
#type() function
#rules of writing variables
#different data types
# Imagine you are a data analyst at a nutrition bar manufacturing company. Your department head approaches you with a question. The company produces a nutrition bar that contains 50g of raisins, 60g of almonds, and 20g of apricots. The head of the manufacturing department wants you to create an ingredient percentage list for the nutrition bar using python.
# Equipped with the knowledge of int, float and booleans in python, how would you approach this situation?
rasins=50
almonds=60
apricot=20
sum=rasins+almonds+apricot
percentapri=(apricot/sum)*100
percentalmond=(almonds/sum)*100
percentrasins=(rasins/sum)*100
print(round(percentapri),round(percentalmond),round(percentrasins))
```

```
15 46 38
```

```
#BOLLEAN values-TRUE FALSE->Decision making statements used in programming
#Comparison operators->==,<=,>=,!=,<,>
boolean_var=False
type(boolean_var)
```

```
bool
```

#Questions

#Q1. *You're creating a program to manage a zoo's animal population. Declare a variable lion_population with an initial value of 10. The zoo welcomes 5 new lion cubs. Update the lion_population variable and print the total lion population.*

```
#Assignment operators

lion_population=10
new_lio=5
lion_population+=new_lio
print(lion_population)
```

```
15
```

2. *You're developing a weather monitoring system. Declare a variable temperature with a value of 25.5 degrees Celsius. Due to a sudden heatwave, the temperature increases by 8 degrees. Update and print the new temperature.* temp=25.5

```

increase=int(input("Enter increase"))
temp=temp+temp*(increase/100)
print(temp)
```

```
Enter increase8
27.54
```

3. *A science experiment involves tracking the growth of a plant. Declare a variable plant_height with an initial value of 15 centimeters. Over a week, the plant grows 2.5 centimeters taller each day. Update and print the final height of the plant after the week.*

```

plant_height=5
increae=2.5
plant_height=(plant_height+increase)*7
print(plant_height)
```

```
91
```

4. *You're designing a space mission trajectory. Declare variables initial_velocity and acceleration with values 3000 meters per second and 500 meters per second squared respectively. Calculate and print the final velocity after 10 seconds.*

intial_velocity=3000

```

acc=500
final_velocity=intial_velocity+(acc*10)
print(final_velocity)
```

```
8000
```

5. *A group of friends is sharing a pizza. Declare a variable pizza_slices with a value of 8. Each friend wants to have an equal number of slices, and there are 5 friends. Calculate and print the maximum number of slices each friend can have without cutting the pizza.* pizza=8

```
pizza=8
friends=5
print(pizza//friends)
```

```
1
```

You're modeling the movement of a pendulum. Declare a variable pendulum_length with a value of 1.2 meters. Calculate and print the period of oscillation (time taken for one complete swing) using the formula (T = 2\pi \sqrt{\frac{L}{g}}), where (\pi) is pi (approximately 3.14159) and (g) is the acceleration due to gravity (approximately (9.81) meters per second squared).

```
pendulum=1.2
pi=3.14159
g=9.8
time=2*pi*(math.sqrt(pendulum/g))
print(time)
```

```
2.198654994580058
```

7. *A software company is tracking the number of bugs in their codebase. Declare a variable bug_count with an initial value of 100. After a round of debugging, 35 bugs are fixed. Update and print the new bug_count.*

```
bug_count=100
bug_fixed=35
bug_count-=bug_fixed
print(bug_count)
```

```
65
```

8. *You're building a game where players collect gems. Declare a variable gem_count with an initial value of 50. Each time a player finds a gem, 5 gems are added to their collection. Update and print the new gem_count.*

```
gem_count=50
gem_count+=5
print(gem_count)
```

```
55
```

9. *A fitness tracker is monitoring a user's heart rate variability (HRV). Declare a variable hrv_index with an initial value of 80. After a relaxation session, the user's HRV improves by 10 points. Update and print the new hrv_index.*

```
hrv_index=80
hrv_index+=10
print(hrv_index)
```

```
90
```

10. *You're simulating the growth of a bacterial colony. Declare a variable bacteria_count with an initial value of 5000. Over a day, the colony doubles in size every 4 hours. Update and print the new bacteria_count.*

```
bacteria=5000
hour=4
bacteria=bacteria*2**(24/hour)
print(bacteria)
```

```
320000.0
```