**Python**

**Assignment: 2**

**In Exercises 1 through 12, evaluate the numeric expression without the computer, and then use Python to check your answer.**

**Question 1:** >>>3\*4

**1**2

**Question 3:** >>>1/(2 \*\*3)

**0.125**

**Question 5:** >>>(5-3)\*4

**8**

**Question 7:** >>> 7 // 3

**2**

**Question 9:** >>> 7 % 3

**1**

**Question 11:** >>>5 // 5

**1**

**In Exercises 13 through 18, determine whether the name is a valid variable name.**

**Question 13: sales.2008**

**Not a valid variable name**

**Question 15: fOrM\_1040**

**Valid variable name**

**Question 17: expenses?**

**Not a valid variable name**

**In Exercises 19 through 24, evaluate the numeric expression where a = 2, b = 3, and c = 4.**

19.>>> (a\*b) + c

**10**

21. >>> (1 + b) \* c

**16**

23. >>> b \*\* (c – a)

**9**

**In Exercises 25 through 30, write lines of code to calculate and display the values.**

25. >>>7\*8 + 5

**61**

27. >>>5.5 % of 20

**1.1**

29. >>>17\*(3 + 162)

**2805**

**In Exercises 31 and 32, complete the table by filling in the value of each variable after each line is executed**.

31.

|  |  |  |
| --- | --- | --- |
|  | X | y |
| X=2 | 2 | - |
| Y=3\*X | 2 | 6 |
| X=Y+5 | 11 | 6 |
| print(x+4) = 15 | 11 | 6 |
| Y=Y+1 | 11 | 7 |

In Exercises 33 through 38,

**determine the output displayed by the lines of code.**

**33.**

>>> a=4

>>> b=5\*a

>>> print(a+b)

**24**

**35.**

>>>num = 5

>>>num\*=2

>>>print(num)

**10**

**37.**

>>> totalMinutes = 135

>>> hours = totalMinutes // 60

>>>minutes = totalMinutes % 60

>>> print(hours, minutes)

**2 15**

In Exercises 39 through 42**, identify the errors**.

**39.**

>>> a=2

>>> b=3

>>> a+b=c

**SyntaxError: can't assign to operator, because the variable ‘c’ has not been declared and initialized for its value to be assigned to the operator ‘a+b’**

>>> print(b)

3

**41.**

>>> 0.05 = interest

**SyntaxError: can't assign to literal**

>>> balance= 800

>>> print(interest\*balance)

Traceback (most recent call last):

File "<pyshell#43>", line 1, in <module>

print(interest\*balance)

NameError: name 'interest' is not defined

>>>

output: The error statement is ‘0.05=interest’ because the variable ‘interest’ has not been defined and initialized, and it cannot be assigned to a literal.

**In Exercises 43 through 48, find the value of the function.**

**43**.

>>> int(10.75)

**10**

**45.**

>>>abs(3-10)

**7**

**47.**

>>>round(3.1279, 3)

**3.128**

**In Exercises 49 through 54, find the value of the function where a = 5 and b = 3**.

>>> a=5

>>> b=3

**49** >>> int(-a/2)

**-3**

**51.**>>> abs(a-5)

**0**

**53**>>> round(a+.5)

**6.0**

**In Exercises 55 through 60, rewrite the statements using augmented assignment operators.**

**55. cost = cost + 5**

Ans: **cost+=5**

**57. cost= cost/6**

Ans: **cost/=6**

**59. sum= sum % 2**

Ans: **sum%=2**

**In Exercises 61 through 68, write a program that has one line of code for each step.**

**61**. **Calculate Profit The following steps calculate a company’s profit.**

(a) Create the variable revenue and assign it the value 98,456.

>>>revenue = 98456

(b) Create the variable costs and assign it the value 45,000.

>>>costs = 45000

(c) Create the variable profit and assign it the difference between the values of the variables revenue and costs.

>>>profit= revenue – costs

(d) Display the value of the variable profit.

>>>print(profit)

**53456**

**63. Discounted Price The following steps calculate the price of an item after a 30% reduction.**

(a) Create the variable price and assign it the value 19.95.

>>>price=19.95

(b) Create the variable discountPercent and assign it the value 30.

>>>discountPercent= 30

(c) Create the variable markdown and assign it the value of (discountPercent divided by 100) times the value of price.

>>>markdown = (discountPercent/100)\*price

(d) Decrease the value of price by markdown.

>>>price=price-markdown

(e) Display the value of price (rounded to two decimal places).

>>>print(round (price, 2))

**64. Break-Even Point The following steps calculate a company’s break-even point, the number of units of goods the company must manufacture and sell in order to break even.**

(a) Create the variable fixedCosts and assign it the value 5,000.

>>>fixedCosts=5000

(b) Create the variable pricePerUnit and assign it the value 8.

>>>pricePerUnit=8

(c) Create the variable costPerUnit and assign it the value 6.

>>>costPerUnit=6

(d) Create the variable breakEvenPoint and assign it the value of fixedCosts divided by (the difference of the values of pricePerUnit and costPerUnit).

>>>breakEvenPoint= fixedCosts/( pricePerUnit - costPerUnit)

(e) Display the value of the variable breakEvenPoint.

>>>print(breakEvenPoint)

**68. Profit from Stock The following steps calculate the percentage profit from the sale of a stock.**

(a) Create the variable purchasePrice and assign it the value 10.

>>>purchasePrice=10

(b) Create the variable sellingPrice and assign it the value 15.

>>>sellingPrice=15

(c) Create the variable percentProfit and assign it 100 times the value of the difference between sellingPrice and purchasePrice divided by purchasePrice.

>>>percentProfit=100\*(( sellingPrice- purchasePrice)/ purchasePrice)

(d) Display the value of the variable percentProfit.

>>>print(percentProfit)

**50**

**In Exercises 69 through 78, write a program to solve the problem and display the answer. The program should use variables for each of the quantities.**

**69. Corn Production Suppose each acre of farmland produces 18 tons of corn. How many tons of corn can be grown on a 30-acre farm?**

**Answer**

>>> tonsOfCorn=18

>>> acreFarm=30

>>> Qunatity= tonsOfCorn\*acreFarm

>>> print(Qunatity)

**540**

**72. Gas Mileage A motorist wants to determine her gas mileage. At 23,352 miles (on the odometer) the tank is filled. At 23,695 miles the tank is filled again with 14 gallons. How many miles per gallon did the car average between the two fillings?**

**Answer:**

>>> d1=23352

>>> d2=23695

>>> gallons=14

>>> avrg = (d2-d1)/gallons

>>> print(avrg)

**24**

**73. Water Usage A survey showed that Americans use an average of 1,600 gallons of water per person per day, including industrial use. How many gallons of water are used each year in the United States? Note: The current population of the United States is about 315 million people.**

**Answer**

>>> gallons=1600

>>>population=315000000

>>> usage= (gallons\*population\*365)

>>> print(usage)

**1.8447392e+14**

**77. U.S. National Debt Suppose the U.S. national debt is 1.68e+13 dollars and the U.S. population is 3.1588e+8. Calculate the per capita U.S. national debt. Display the answer rounded to the nearest whole number.**

**Answer**

>>> National\_debt= 1.68\*(10\*\*13)

>>> population = 3.1588\*(10\*\*8)

>>> perCapitaDebt= National\_debt/population

>>> print(round(perCapitaDebt))

**53185.0**

**78. Calories Estimate the number of calories in one cubic mile of chocolate ice cream. Note: There are 5,280 feet in a mile and one cubic foot of chocolate ice cream contains about 48,600 calories.**

**Answer:**

>>> calories= 48600

>>> feet= 5280

>>> quantity = calories\*feet

>>> print(quantity)

**256608000**