Solve the exercises 1 to 19 from Fundementals of python programming book:

chapter 3_ section 10 (Exercises) page 63:

1_ Is the literal 4 a valid Python expression? No, it is not

2_ Is the variable x a valid Python expression? No, it is not

3_ Is x + 4 a valid Python expression? Yes, it is.

but x should be defined.

4_ What affect does the unary + operator have

when applied to a numeric expression? No effect all numeric values are positive by default.

5_ Sort the following binary operators in order of

high to low precedence: +, -, *, //, /, %, =.?

* , // , / , % > + , - > =

6_ Given the following assignment:

x = 2

Indicate what each of the following Python statements would print.

(a) print("x") =>x

(b) print('x') =>x

(c) print(x) =>2

(d) print("x + 1") =>x + 1

(e) print('x' + 1) => error

(f) print(x + 1) =>3

7_ Given the following assignments:

i1 = 2

i2 = 5

i3 = -3

d1 = 2.0

d2 = 5.0

d3 = -0.5

Evaluate each of the following Python expressions.

(a) i1 + i2 =7

(b) i1 / i2 =2/5 = 0.4

(c) i1 // i2 =2//5 = 0

(d) i2 / i1 =5/2 = 2.5

(e) i2 // i1 =5//2 = 2

(f) i1 * i3 =2 * -3 = -6

(g) d1 + d2 =2.0 + (-0.5) = 1.5

(h) d1 / d2 =2.0/5.0 = 0.4

(i) d2 / d1 =5.0/2.0 = 2.5

(j) d3 * d1 =-0.5 * 2.0 = -1.0

(k) d1 + i2 =2.0 + 5 = 7.0

(l) i1 / d2 =2/5.0 = 0.4

(m) d2 / i1 =5.0/2 = 2.5

(n) i2 / d1 =5/5.0 = 1.0

(o) i1/i2*d1 =2/5*2.0 = 0.8

(p) d1*i1/i2 =2.0*2/5 = 0.8

(q) d1/d2*i1 =2.0/5.0*2 = 0.8

(r) i1*d1/d2 =2*2.0/5.0 = 0.8

(s) i2/i1*d1 =5/2*2.0 = 5.0

(t) d1*i2/i1 =2.0*5/2 = 5.0

(u) d2/d1*i1 =5.0/2.0*2 = 5.0

(v) i1*d2/d1 =2*5.0/2.0 = 2.0

8_ What is printed by the following statement:

#print(5/3)

Converts the entire line to a

9_ Given the following assignments:

i1 = 2

i2 = 5

i3 = -3

d1 = 2.0

d2 = 5.0

d3 = -0.5

Evaluate each of the following Python expressions.

(a) i1 + (i2 * i3) =2+(5*-3)= -13

(b) i1 * (i2 + i3) =2*(5-3) = 4

(c) i1 / (i2 + i3) =2/(5-3) = 1.0

(d) i1 // (i2 + i3) =2//(5-3) = 1

(e) i1 / i2 + i3 = 2/5 -3 = -2.6

(f) i1 // i2 + i3 = 2//5 -3 = -3

(g) 3 + 4 + 5 / 3 =8.66...

(h) 3 + 4 + 5 // 3 =8

(i) (3 + 4 + 5) / 3 =4.0

(j) (3 + 4 + 5) // 3 = 4

(k) d1 + (d2 * d3)

=2.0 + (5.0 * -0.5) = -0.5

(l) d1 + d2 * d3

=2.0 + 5.0 * -0.5 = -0.5

(m) d1 / d2 - d3

=2.0 / 5.0 - (-0.5) = 0.9

(n) d1 / (d2 - d3)

=2.0/(5.0 - (-0.5)) = 0.3636...

(o) d1 + d2 + d3 / 3

=2.0 + 5.0 -0.5/3 = 2.88...

(p) (d1 + d2 + d3) / 3

=(2.0 + 5.0 - 0.5)/3 = 2.166...

(q) d1 + d2 + (d3 / 3)

=2.0+5.0+(-0.5/-3) = 7.66...

(r) 3 * (d1 + d2) * (d1 - d3)

=3*(2+5)*(2.0 - (-0.5)) = 52.5

10_ What symbol signifies the beginning of a comment in Python? =>#

11. How do Python comments end?

If the Comments are changhes so The comment will end

12_ Which is better, too many comments or too few comments? too few comments is better than too many comments

13_ What is the purpose of comments?

human readability:

in case a piece of code needs to be modified

programmer comments

aid them in reading and understanding the code faster.

14_ Why is human readability such an important consideration? Because humans write code so it is crucial that they understand the code easier and faster.

15_ What circumstances can cause each of the following run-time errors to arise?

- NameError

using undefined variable

- ValueError

wrong value given to functions

- ZeroDivisionError

dividing by zero

- IndentationError

python declares blocks by indentation, so unnecessary indentation may cause this error

- OverflowError

math operations having very large results

- SyntaxError

incomplete code

- TypeError

trying to work with incompatible types

16. Consider the following program which contains some errors. You may assume that the comments within the program accurately describe the program's intended behavior.

```
# Get two numbers from the user
n1 = float(input()) # 1
n2 = float(input()) # 2
# Compute sum of the two numbers
print(n1 + n2) # 3
# Compute average of the two numbers
print(n1+n2/2) # 4
# Assign some variables
d1 = d2 = 0 # 5
both d1 and d2 are 0 d2 is useless.
# Compute a quotient
print(n1/d1) # 6
zeroDivisionError since d1 is 0
# Compute a product
n1*n2 = d1 # 7
d1 = n1*n2
# Print result print(d1) # 8
```

For each line listed inthe comments, indicate whether or not an interpreter error,run-time

exception, or logic error is present. Not all lines contain an error.

17_ Write the shortest way to express each of the following statements.

(a) x = x + 1= x += 1

(b) x = x / 2= x /=2

(c) x = x - 1= x -= 1

(d) x = x + y =x += y

(e) x = x - (y + 7) =x -= y+7

(f) x = 2*x =x *= 2

(g) number_of_closed_cases = number_of_closed_cases + 2*ncc

= number_of_closed_cases += 2*ncc

18_ What is printed by the following code fragment?

x1 = 2

x2 = 2

x1 += 1

x2 -= 1

print(x1) =3

print(x2) =1

Why does the output appear as it does?

because x1 += 1 means x1 = x1 + 1

and x2 -= 1 means x2 = x2 – 1

19_ Consider the following program that attempts to compute the circumference of a circle given the radius entered by the user. Given a circle's radius, r, the circle's circumference, C is given by the formula:

C = 2πr

r = 0

PI = 3.14159

Formula for the area of a circle given its radius C = 2*PI*r

=> r is not defined yet.

Get the radius from the user

r = float(input("Please enter the circle's radius: "))

=>should be above C = 2*PI*r

Print the circumference

print("Circumference is", C)

(a) The program does not produce the intended result. Why?

Because should be above C = 2*PI*r

(b) How can it be repaired so that it works correctly?

```
PI = 3.14159
r = float(input("Please enter the circle's radius: "))
C = 2*r*PI
print("Circumference is: ", C)
```