In The Name Of God

Programing Homework

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Chapter 3, Section10(EXERCISES)

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1. Is the literal 4 a valid Python expression?

-No

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2. Is the variable x a valid Python expression?

-No

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3. Is x + 4 a valid Python expression?

-Yes, but x should be defined

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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: +, -, *, //, /, %, =.

= **The general order is PEMDAS.**

parentheses, exponents, multiplication, division, addition

and subtraction.

so

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

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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) = **type 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**

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8. What is printed by the following statement:

#print(5/3) = **# converts the whole line to a comment, so nothing.**

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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**

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10. What symbol signifies the beginning of a comment in Python?

= **#**

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11. How do Python comments end?

= **comments, are line elements, so if the line changes, comment will end.**

12. Which is better, too many comments or too few comments?

= **The happy medium is moderate amount of useful comments.**

but, "when in doubt, add a remark" as the book explains

itself...

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13. What is the purpose of comments?

= **human readability:**

in case a piece of code needs to be modified by another

programmer or even the same programmer, comments

aid them in reading and understanding the code faster.

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14. Why is human readability such an important consideration?

= **"Programmers are more important then programs"**

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, like int('pizza')**

• ZeroDivisionError

= **dividing by zero: 2/0**

• IndentationError

= **python declares blocks by indentation, so unnecessary**

indentation may cause this error

• OverflowError

= **math operations having very large results: 1.5**9999**

- SyntaxError

= **incomplete code, or problems regarding the way python should be written: print)**

- TypeError

= **trying to work with incompatible types: print("yourage is: " + 13)**

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.

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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?

=> x1 = +1 means x1 = x1 + 1

and x2 = -1 means x2 = x2 – 1

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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?

=> explained above.

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

=>

PI = 3.14159

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

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C = 2*r*PI
print("Circumference is: ", C)
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