1-Is the literal 4 a valid Python expression?

answer is Yes. literal 4 is valid expression in python.

2-Is the variable x a valid Python expression?

Yes

3- Is x + 4 a valid Python expression?

Yes

4- What affect does the unary + operator have when applied to a numeric expression?

Unary - changes the sign of a numeric expression to the right of the operator. Unary + has no effect on an expression; it is included for completeness and because some programmers like to use it to emphasize that a number is positive.

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 2+5=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+5.0=7.0

(h) d1 / d2 2.0/5.0=0.4

(i) d2 / d1 0.5/2.0=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 5/2.0=2.5

(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

(t) d1\*i2/i1 2.0\*5/2.0=5

(u) d2/d1\*i1 5.0/2.0\*2=5

(v) i1\*d2/d1 2\*5.0/2.0=5

8. What is printed by the following statement:

#print(5/3)

This comment does not show anything

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))=2+(-15)=-13

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

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

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

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

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

(g) 3 + 4 + 5 / 3 7+5/3=1.6666666666666667+7=8.6666666666666667

(h) 3 + 4 + 5 // 3 7+1=8

(i) (3 + 4 + 5) / 3 12/3=4.0

(j) (3 + 4 + 5) // 3 12//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))=0.363636363636365

(o) d1 + d2 + d3 / 3 2.0+5.0+(-0.5)/3=6.833333333333333

(p) (d1 + d2 + d3) / 3 (2.0+5.0(-0.5))/3=2.1666666666666665

(q) d1 + d2 + (d3 / 3) 2.0+5.0+((-0.5)/3)=6.833333333333333

(r) 3 \* (d1 + d2) \* (d1 - d3) 3\*(2.0+5.0)\*(2.0-(-0.5))=52.5

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

Sharp

11. How do Python comments end?

Comments in Python begin with a hash mark ( # ) and whitespace character and continue to the end of the line.

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

13. What is the purpose of comments?

A comment is basically a text note that gives an explanation about the source code. Furthermore, they act as documentation in the source code. We include comments to increase the readability of the program. Besides, comments make it easy for the programmer to remember the complex things added to the code

14. Why is human readability such an important consideration?

Because the typical size of a meaningful coding project is massively bigger than any individual can hold in "working memory."

Most projects only ever get worked on by one programmer, but any programmer who's ever come back to a project they did more than a few weeks away will tell you that good, readable code is vital.

Add a second programmer to the mix, and the benefits of taking a bit longer to write human-readable code in the first place become apparent.

Give a decade or two, when most coding will be done by AIs, and "human-readable" won't be an issue...

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

• NameError

• ValueError

• ZeroDivisionError

• IndentationError

• OverflowError

• SyntaxError

• TypeError

Hint: Try some of following activities in the interpreter or within a Python program:

• print a variable that has not been assigned

• convert the string 'two' to an integer

• add an integer to a string

• assign to a variable named end-point

• experiment adding spaces and tabs at various places in the code of an error-free Python program

• compute raise a floating-point number to a large power, as in 1:510;000.

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

# Compute a quotient

print(n1/d1) # 6

# Compute a product

n1\*n2 = d1 # 7

# Print result

print(d1) # 8

For each line listed in the 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?

x1 += 1 means x1= x1+1and 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 = 2pr

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: "))

C = 2\*r\*PI

print("Circumference is: ", C)

20. Write a Python program that ...

num = int(input("Enter a number: "))

mod = num % 2

if mod > 0:

print("This is an odd number.")

else:

print("This is an even number.")