
EXAM 1 REVIEW

Question 1

- Write the Python expressions to calculate:

- $$\frac{4+3 * 2^{n-2}}{10}$$

- the sum of the cubes of integers x and y
- the number of seconds in 4 hours, 14 minutes, and 32 seconds

Question 2

- Write the Python boolean expressions for these conditions:
 - x is a factor of y (x divides evenly into y)
 - age is at least 18 and $state$ equals Hawaii
 - the string contained in variable $name$ contains a 'z'

Question 3

- Consider this code:

```
if x % 2 == 1:
    if x**3 != 27:
        x = x + 4
    else:
        x = x / 1.5
else:
    if x <= 10:
        x = x * 2
    else:
        x = x - 2
print(x)
```

- What does this code print if **x == 8**?
- What does this code print if **x == 5**?

Question 4

- Consider this code:

```
x = input('Enter a string: ')
y = 0
for i in x:
    print(y, i)
    y += 1
```

- What does this code print the user enters “Felix”?

Question 5

- Write the Python loop to get the sum of all the odd numbers between 1 and n, for an input value of n. For example, the sum of the odds between 1 and 7 is:

$$1 + 3 + 5 + 7 = 16$$

... or if $n == 11$ or $n = 12$, the output would be 36 since:

$$1 + 3 + 5 + 7 + 9 + 11 = 36$$

Question 6

- Consider this code:

```
x = input('Enter a string: ')
y = 0
for i in x:
    if i == 'a':
        y += 1
print(y)
```

Write a while loop that does exactly the same thing as the for loop

Question 7

- Consider the following code segment:

```
myList = []  
myList.append("P")  
myList.append("Q")  
myList.append("R")  
myList.insert(2, "s")  
myList.insert(2, "T")  
myList.append("u")  
print(myList)
```

- What is printed as a result of executing the code segment?
 - (a) [P, Q, R, s, T, u]
 - (b) [P, Q, s, T, R, u]
 - (c) [P, Q, R, T, s, u]
 - (d) [P, T, s, Q, R, u]
 - (e) [P, Q, T, s, R, u]

Question 1

- Write the Python expressions to calculate:

- $$\frac{4+3 * 2^{n-2}}{10}$$

- $(4 + 3 * 2 ** (n - 2))/10$

- the sum of the cubes of integers x and y

- $x ** 3 + y ** 3$

- the number of seconds in 4 hours, 14 minutes, and 32 seconds

- $(4 * 60 ** 2) + (14 * 60) + 32$

Question 2

- Write the Python boolean expressions for these conditions:
 - x is a factor of y (x divides evenly into y)
 - $y \% x == 0$
 - age is at least 18 and $state$ equals Hawaii
 - $age \geq 18$ and $state == 'Hawaii'$
 - the string contained in variable $name$ contains a 'z'
 - $'z' in name$

Question 3

- Consider this code:

```
if x % 2 == 1:
    if x**3 != 27:
        x = x + 4
    else:
        x = x / 1.5
else:
    if x <= 10:
        x = x * 2
    else:
        x = x - 2
print(x)
```

- What does this code print if $x == 8$? **16**
- What does this code print if $x == 5$? **9**

Question 4

- Consider this code:

```
x = input('Enter a string: ')
y = 0
for i in x:
    print(y, i)
    y += 1
```

- What does this code print the user enters “Felix”?

```
0 F
1 e
2 l
3 i
4 x
```

Question 5

- Write the Python loop to get the sum of all the odd numbers between 1 and n, for an input value of n. For example, the sum of the odds between 1 and 7 is:
 $1 + 3 + 5 + 7 = 16$

... or if $n == 11$ or $n = 12$, the output would be 36 since:
 $1 + 3 + 5 + 7 + 9 + 11 = 36$

```
sum = 0
for num in range (1, n+1):
    if num % 2 == 1:
        sum += num
```

Question 6

- Consider this code:

```
x = input('Enter a string: ')
y = 0
for i in x:
    if i == 'a':
        y += 1
print(y)
```

Write a while loop that does exactly the same thing as the for loop

```
x = input('Enter a string: ')
y, i = 0, 0
while x:
    if x[i] == 'a':
        y += 1
    x = x[1:]
print(y)
```

Question 7

- Consider the following code segment:

```
myList = []  
myList.append("P")  
myList.append("Q")  
myList.append("R")  
myList.insert(2, "s")  
myList.insert(2, "T")  
myList.append("u")  
print(myList)
```

- What is printed as a result of executing the code segment?
 - (a) [P, Q, R, s, T, u]
 - (b) [P, Q, s, T, R, u]
 - (c) [P, Q, R, T, s, u]
 - (d) [P, T, s, Q, R, u]
 - (e) [P, Q, T, s, R, u]**

