

CSCI 145 Quiz 3 practice questions on conditionals and loops **ANSWER KEY**

1. Evaluate each expression. Write True or False.

$7 \% 2 == 1$ and $4 > 6$ **False** $12 \% 5 != 2$ or $3 <= 3$ **True**

not $4 >= 4$ or $6 \% 4 == 2$ **True**

2. Consider this code:

```
if temp >= 80:
    print("hot")
elif temp >= 70:
    print("warm")
elif temp >= 50:
    print("cool")
else:
    print("cold")
```

What does it print when temp is:

a) 70 **warm**

b) 50 **cool**

c) 30 **cold**

3. Consider this code:

```
n = 12
if n % 2 == 0:
    print("even")
if n % 3 == 0:
    print("multiple of 3")
if n > 10:
    print("big")
```

a) What does this code print?

even
multiple of 3
big

b) What does it print if the second and third if are each changed to elif?

even

4. Write the exact output of each snippet, one printed value per line.

A

```
x = 1
while x < 20:
    print(x)
    x = x * 3
```

1
3
9

B

```
k = 10
while k < 10:
    print(k)
    k = k + 1
print("end")
```

end

C

```
for i in range(1, 8, 3):
    print(i)
```

1
4
7

5. For each loop, circle whether it stops or never stops, and explain why in one line.

A

```
i = 10
while i > 0:
    print(i)
    i = i + 2
```

stops never stops ← **never stops**

Why: **i grows (10, 12, 14, ...), so i > 0 is always True**

B

```
n = 1
while n != 10:
    print(n)
    n = n + 2
```

stops never stops ← **never stops**

Why: **n is always odd (1, 3, ..., 9, 11, ...), so it skips 10**

6. List the values each range produces, in order.

range(6) **0 1 2 3 4 5**

range(4, 9) **4 5 6 7 8**

range(10, 30, 5) **10 15 20 25**

How many times does the body of for i in range(3, 15): run? **12**

7. Fill in the blanks so the while loop prints exactly the same values as the for loop.

for

```
for i in range(5, 50, 5):
    print(i)
```

while

```
i = 5
while i < 50:
    print(i)
    i = i + 5
```

8. Write a function ticket_price(age) that returns the price of a movie ticket. If age is less than 3, it returns 0. If age is from 3 to 12, or 65 or older, it returns 8. Otherwise, it returns 12. For example:

```
>>> ticket_price(2)
0
>>> ticket_price(70)
8
>>> ticket_price(30)
12
```

```
def ticket_price(age):
    if age < 3:
        return 0
    elif age <= 12 or age >= 65:
        return 8
    else:
        return 12
```

9. Write a function print_halves(n) that uses a while loop to print n, then n // 2, then half of that (using //), and so on, one per line, as long as the number is greater than 0. If n is 0 or negative, it prints nothing. The function does not return a value. For example:

```
>>> print_halves(20)
20
10
5
2
1
```

```
def print_halves(n):
    while n > 0:
        print(n)
        n = n // 2
```