



Polytechnic Tutoring Center

Exam 1 Review - CS 1114, Spring 2026

Disclaimer: This mock exam is only for practice. It was made by tutors in the Polytechnic Tutoring Center and is not representative of the actual exam given by the CS Department.

1. Given these assignments: **a = 5**, **b = 2**, and **s = 1.5** write the result type and value of the following expressions. Circle **ERROR** if the expression will result in a run time error.

	Statement	Type	Value of A	Error?
(i)	<code>A = 9 - 3 * 2 + 8 // 4</code>			
(ii)	<code>A = 5 % 4 + 3.0 ** 2 - 6 // 4</code>			
(iii)	<code>A = (12 // 5 - 2.5 ** 2 + 8 * 2)</code>			
(iv)	<code>A = 4 * 48 // (6 * 2) // 3</code>			
(v)	<code>A = 4 == 8</code>			
(vi)	<code>A = 0 == False</code>			
(vii)	<code>A = 250 // 20 % 5</code>			
(viii)	<code>A = (7 + 3) * 2 ** 2 // 5</code>			
(ix)	<code>A = 9 // 0</code>			
(x)	<code>A = 4 ++ 7</code>			

2. Write a Python program that generates a fun random username based on user input.

The program should:

- a. Ask the user to enter their **first name** and **favorite color**.
- b. Create a username using the following rules:
 - Take the **first two letters** of the name.
 - Take the **last two letters** of the color.
 - Add a random **3-digit number** at the end.
- c. Display the final username to the user.

Sample Output:

Enter your first name: Sarah

Enter your favorite color: Purple

Your random username is: Sale472

Your answer:

```
import random
```

3. What is the output from the following code after the user enters 75?

```
c = int(input('Enter a value: '))
if c > 100:
    print("A")
elif c > 50:
```

```

        if c % 5 == 0 and not(c % 10 == 0):
            print("B")
        elif c % 5 == 0:
            print("C")
        else:
            print("D")
    if c > 20:
        print("E")
    else:
        print("F")

```

Your answer:

4. What is the output from the following code? (Use the character `\n` to indicate a whitespace in the output.)

```

acc = 0
for i in range(5,15,5):
    var = i;
    while var > 0:
        var //= 2;
        acc += var;
        print("i=",i," var=",var);
print("acc=",acc);

```

Your answer:

5. Write a program that prompts for the radius length. Your program should calculate and print the resulting circumference (float) and area (float) of a circle with that radius. You must also check

that the given radius is **positive**. Otherwise, print an error message and do not carry out the calculations. Use $\pi = 3.14$ for this question rather than importing the math module.

Sample Outputs 1:

```
Enter a radius: 3
Circumference: 18.84
Area: 28.26
```

Sample Outputs 2:

```
Enter a radius: -1
ERROR: Radius must be positive
```

Your Code:

6. Write a program that prompts for a row number and prints out the pattern in a zig-zag way. If the leading number of the row is odd, the row displays numbers in a decreasing sequence, starting from the leading number to 1. If the leading number of the row is even, the row displays numbers in an increasing sequence, starting from 1 to the leading number. Assume the input is always a valid positive integer. (Use the character `\n` to indicate a whitespace in the output.)

Sample Output 1:

```
Enter # of row: 5

5 4 3 2 1
1 2 3 4
3 2 1
1 2
1
```

Sample Output 2:

Enter # of row: 4

```
1 2 3 4
3 2 1
1 2
1
```

Your Code:

7. Write a program that prompts the user to enter a sequence of positive integers where each integer represents how many hours the employee worked in a day this week. When the user enters a negative integer, there are no more days to input. However, since there is a maximum of 7 days in a week, so at most you can take inputs for 7 times. The program should then print out (a) the employee's bonus pay for that week; (b) the employee's overtime pay for that week; and (c) the employee's total pay for that week. (In the following examples, `pay_rate` is 10.0.)

The rules governing an employee's pay are as follows:

- a. Each employee has an hourly pay rate, which we will call `pay_rate`. An employee is paid `pay_rate` dollars for every hour worked. `pay_rate` is a variable defined for you in advance; you should not define it or read it in.
- b. If an employee works more than 10 hours in a single day, they must be paid an additional *bonus* of \$13 for each such day.
- c. If an employee works a total of more than 40 hours in a single week, any hours over 40 will be paid at an *overtime* rate of one-and-a-half times their usual hourly wage. Hours under 40 will be paid at the usual rate. For example, if an employee has a normal rate of \$10 per hour and works 45 hours in a single week, they will be paid $\$10 \times 40 = \400 for the first 40 hours, then an additional overtime of $1.5 \times \$10 \times 5 = \75 for the remaining 5 hours, for a total pay of \$475.

The output in your calculations should be rounded to 2 decimal places if the output is more than 2 decimal places.

(In the following examples, `pay_rate` is 10.275.)

Sample outputs:

Enter the hours worked: 10 -1 Bonus Pay: \$0.0 Overtime Pay: \$0.0 Total Pay: \$102.75	Enter the hours worked: 10 10 11 -2 Bonus Pay:\$ 13.0 Overtime Pay:\$ 0.0 Total Pay:\$ 331.53
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Enter the hours worked: 20 20 10 -1 Bonus Pay: \$26.0 Overtime Pay: \$154.12 Total Pay: \$591.12	Enter the hours worked: 5 5 5 5 5 5 5 5 Bonus Pay: \$ 0.0 Overtime Pay: \$ 0.0 Total Pay: \$ 359.62
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Your Code:

8 (Extra Credit) Pokemon Getto Da ze! (I hope Nintendo does not sue me for this)

I want you to program a simple, interactive game:

Our legendary Pokemon Trainer, Ashly, is trying to catch a wild pokemon! You will write a program to prompt for user input for an action, more specifically for what Ashly will throw at the wild pokemon, so the response will only possibly be "pokeball", "pebble", or "candy". The game is won when the pokemon is caught, and lost when the pokemon runs away. Print some kind of message and end your program for both cases! The three actions have different effects.

The wild pokemon, at the beginning of the game, has a one-in-four chance of getting caught and one-in-five chance of the pokemon running away when you throw something at him/her. We call it the catch-rate (hint: use a random number and select a range to simulate a probability event!), that is, if you throw a pokeball. If you throw a candy, the pokemon's probability of running away decreases by 10%, but catch-rate will also decrease by 10%. If you throw a pebble instead, the opposite happens: the catch-rate is increased by 10% but the pokemon also has a +10% probability of running away!

Each time you throw something, you should check the probabilities of running-away. Each time you throw a pokeball, check the probability of catching the pokemon, this happens before checking whether the pokemon runs away because of it.

Oh, if Ashly does not catch the pokemon within 5 throws (of anything), pokemon runs away!

Additional hint: probability does not go below zero!