**BTP100 Practice Problem #1: Week 2**

Create a C program that does the following tasks.

1. PROMPT the user to enter the radius of a circle.

2. Calculate the area of a circle.

- formula: area = PI x radius x radius

3. Display the area of a circle.

4. Calculate the circumference of a circle.

- formula: circumference = 2 x PI x radius

5. Display the circumference of a circle.

Note: Use an online calculator to check if the output of your program is correct or not. <https://www.piday.org/calculators/circumference-calculator/>

6. Prompt the user to enter the width, length and height of a water tank.

(You may prompt the user three times. You could also prompt the user once.)

7. Calculate the volume of the water tank.

- formula: volume = width x length x height

8. Display the volume of the water tank.

Note: Use a calculator to check if the output of your program is correct or not

**Additional Help**

1. Watch this video clip:

<https://www.youtube.com/watch?app=desktop&v=tFzZEZ9sHlo&feature=youtu.be>

**Practice Problem #2**

1. Prompt the user to enter an integer that is equal to or greater than zero.

2. Find out if the integer is **even** or **odd**. (Note: What are the definitions?)

3. Display a message to inform the user if the integer is even or odd.

**Additional Help**

Watch this video clip:

<https://www.youtube.com/watch?app=desktop&v=G55MK9X6OJU&feature=youtu.be>

**Practice Problem #3**

1. Prompt the user to enter a floating-pointer number with one decimal digit (e.g. 46.5).

2. Convert the floating-point number to an integer according to the following rules:

a) If the fractional part is between 0.1 and 0.4, truncate the decimal digit.

For example, 46.3 is converted to 46.

b) If the fractional part is between 0.5 and 0.9, round the floating-point number to a higher integer.

For example, 46.5 is converted to 47.

3. Display the integer value as the result of conversion.

Note: You should test your C program with these testing data:

46.1, 46.3, 46.4, 46.5, 46.7, 46.8.

**Additional Help**

Watch this video clip:

<https://www.youtube.com/watch?app=desktop&v=LxmxLK_32qA&feature=youtu.be>

**Practice Problem #4**

1. Ask the user if one is a child or not (0: NO, 1: YES).

2. Ask the user if one is a senior or not (0:NO, 1:YES).

3. Display the status of the user.

- “You are an adult.” OR “You are not an adult.”

- definition of an adult: not a child, not a senior

4. Ask the user if one is employed or not (0: NO, 1: YES).

5. Display the following message:

- “You are a working adult!” OR “You are not a working adult!”

- definition of a working adult: an adult, employed

**Additional Help**

Watch this video clip:

<https://youtu.be/98pqFGsPdjo>

**Practice Problem #5**

Can you make changes to your C program (Practice Problem #4) by using **De Morgan’s Law**?