Gallons Converter

Create a program that converts gallons to quarts, pints, cups or ounces accordingly based on user's choice.

Note: **Bold** words are output while non-bold words are input in the following console samples.

Console Sample 1

```
Gallons Converter

Please choose one of the following menu items:
1. Convert Gallons to Quarts
2. Convert Gallons to Pints
3. Convert Gallons to Cups
4. Convert Gallons to Ounces

Enter menu item: 1
Enter gallons: 1

Quarts: 4
```

Console Sample 2

```
Gallons Converter

Please choose one of the following menu items:
1. Convert Gallons to Quarts
2. Convert Gallons to Pints
3. Convert Gallons to Cups
4. Convert Gallons to Ounces

Enter menu item: 2
Enter gallons: 1

Pints: 8
```

Console Sample 3

```
Gallons Converter

Please choose one of the following menu items:
1. Convert Gallons to Quarts
2. Convert Gallons to Pints
3. Convert Gallons to Cups
4. Convert Gallons to Ounces

Enter menu item: 3
Enter gallons: 1

Cups: 16
```

Console Sample 4

```
Gallons Converter
```

```
Please choose one of the following menu items:
1. Convert Gallons to Quarts
2. Convert Gallons to Pints
3. Convert Gallons to Cups
4. Convert Gallons to Ounces

Enter menu item: 4
Enter gallons: 1

Ounces: 128
```

Console Sample 5

```
Gallons Converter

Please choose one of the following menu items:
1. Convert Gallons to Quarts
2. Convert Gallons to Pints
3. Convert Gallons to Cups
4. Convert Gallons to Ounces

Enter menu item: 5
Enter gallons: 1

Invalid menu item!
```

Specifications

- You have to define a class *GallonsConverter* with a private data member corresponding to gallons.

- Declare and define a non-default constructor which requires a parameter corresponding to the private data member for the class *GallonsConverter*.

- Declare and define the necessary getter and setter for the private member in the class *GallonsConverter*.

- Declare and define a public member function in the class *GallonsConverter* to convert gallons to quarts and return the result. The formula for this conversion is:

  ```
  quarts = gallons * 4
  ```

- Declare and define a public member function in the class *GallonsConverter* to convert gallons to pints and return the result. The formula for this conversion is:

  ```
  pints = gallons * 8
  ```

- Declare and define a public member function in the class *GallonsConverter* to convert gallons to cups and return the result. The formula for this conversion is:

  ```
  cups = gallons * 16
  ```

- Declare and define a public member function in the class *GallonsConverter* to convert gallons to ounces and return the result. The formula for this conversion is:

  ```
  ounces = gallons * 128
  ```

- Declare and define a public member function in the class *GallonsConverter* which accepts the menu item chosen by the user as the argument and displays the corresponding result as shown in all the console samples above. Specifically:

> ➤ If the menu item is an integer between 1 and 4, the corresponding conversion will be performed and the result will be displayed as shown in Console Sample 1, 2, 3, 4.

> ➤ If the menu item is not any integer between 1 and 4, no conversion will be performed and an error message will be displayed as shown in Console Sample 5.

- The program should accept decimal entries like 35.5 and 14.25.

- Assume the user will always enter valid input of gallons.

- No requirement on the precision of the result.