1. Consider the program shown below:

```python
def helper1(word, letter):
    for i in range(len(word)):
        if word[i] == letter:
            return i
    return -1

def helper2(word, letter):
    total = 0
    for ch in word:
        if ch == letter:
            total += 1
    return total

def main():
    test = "frisbee"
    check = "e"
    print helper1(test, check)
    print helper2(test, check)

main()
```

(a) Define the term *argument* and give an example from the program above.

(b) Define the term *parameter* and give an example from the program above.

(c) Describe the steps that occur when a function call is executed. Use an example from the above program.

(d) What would be better names for `helper1` and `helper2`?

(e) What is printed when this program is run?
2. Consider the function below which is intended to determine whether a given number is negative, zero, or positive.

```python
def testNumber(n):
    if n < 0:
        print "negative"
    elif n > 0:
        print "positive"
    else:
        print "zero"
```

(a) What will be printed for `testNumber(5)`?
(b) What will be printed for `testNumber(-5)`?
(c) What will be printed for `testNumber(0)`?
(d) Does the function give the desired result? If not, write a corrected version below.
3. A person is eligible to be a US senator if he or she is at least 30 years old and has been a citizen for at least 9 years. Write a program that takes a person’s age and years of citizenship as input and returns their eligibility for the Senate. For example:

```python
>>> main()
Enter your age >> 30
Enter years US citizen >> 5
Eligibility for the Senate:
You have not been a US citizen long enough.

>>> main()
Enter your age >> 30
Enter years US citizen >> 10
Eligibility for the Senate:
You are eligible!

>>> main()
Enter your age >> 29
Enter years US citizen >> 10
Eligibility for the Senate:
You are too young.
```
4. Many US companies pay time-and-a-half for any hours worked above 40 in a given week. For example, an employee who makes $10 an hour and worked 45 hours in a particular week would make $(10 \times 40) + (15 \times 5) = 475$. Below is a program that takes the number of hours worked and the hourly rate as input and calculates the week’s wages.

```python
def main():
    hours = input("Enter the number of hours worked this week >> ")
    rate = input("Enter the hourly rate >> ")
    if hours <= 40:
        wages = hours * rate
    else:
        wages = 40 * rate + (hours - 40) * 1.5 * rate
    print "Wages are", wages

(a) Rewrite this program so that it now uses a function called wages that takes the hours worked and hourly rate as parameters and returns the week’s pay. Be sure to show the updated version of main.

(b) Even though this second version is longer than the first version, give three reasons why it is better to use a function in this situation.