

## Answer Key Question 1

### Version 1:

There are 5 sports  
Two of them are Football Baseball  
P  
o  
i  
n  
t  
  
G  
u  
a  
r  
d  
Basketball Point Guard

### Version 3:

There are 5 sports  
Two of them are Ultimate Frisbee  
Wrestling  
L  
e  
f  
t  
  
F  
e  
i  
l  
d  
Baseball Left Field

### Version 2:

There are 5 sports  
Two of them are Swimming  
Basketball  
Q  
u  
a  
r  
t  
e  
r  
  
B  
a  
c  
k  
Football Quarter Back

### Version 4:

There are 5 sports  
Two of them are Gymnastics Hand  
Ball  
G  
o  
a  
l  
  
K  
e  
e  
p  
e  
r  
Soccer Goal Keeper

## Answer Key Question 2

### Version 1:

```
def q2_1():
    hours = eval(input("Enter the number of hours: "))
    days = hours//24
    rhours = hours%24
    print(hours,"hours is equivalent to", days,"days and", rhours,
"hours")
```

```
q2_1()
```

### Version 2:

```
def q2_2():
    days = eval(input("Enter the number of days: "))
    weeks = days//7
    rdays = days%7
    print(days,"days is equivalent to", weeks,"weeks and", rdays, "days")
```

```
q2_2()
```

### Version 3:

```
def q2_3():
    weeks = eval(input("Enter the number of weeks: "))
    years = weeks//52
    rweeks = weeks%52
    print(weeks,"weeks is equivalent to", years,"years and", rweeks,
"weeks")
```

```
q2_3()
```

### Version 4:

```
def q2_4():
    mins = eval(input("Enter the number of minutes: "))
    hours = mins//60
    rmins = mins%60
    print(mins,"minutes is equivalent to", hours,"hours and", rmins,
"minutes")
```

```
q2_4()
```

Answer Key  
Question 3

Version 1:

```
from graphics import *

def setUp():
    return GraphWin()

def userInput():
    done = False
    while not done:
        color = input("Enter color (red, green or blue): ")
        if color == "red":
            done = True
        elif color == "green":
            done = True
        elif color == "blue":
            done = True
        else:
            print("Invalid color, please try again")
    return color

def displayCircle(w,c):
    center = Point(100,100)
    circle = Circle(center, 50)
    circle.setFill(c)
    circle.draw(w)

def conclusion(w):
    w.getMouse()
    w.close()

def main():
    w = setUp()
    c = userInput()
    displayCircle(w,c)
    conclusion(w)

main()
```

Answer Key  
Question 3

Version 2:

```
from graphics import *

def setUp():
    return GraphWin()

def userInput():
    done = False
    while not done:
        color = input("Enter color (red, green or blue): ")
        if color == "red":
            done = True
        elif color == "green":
            done = True
        elif color == "blue":
            done = True
        else:
            print("Invalid color, please try again")
    return color

def displayCircle(w,c):
    w.setBackground(c)
    center = Point(100,100)
    circle = Circle(center, 50)
    circle.draw(w)

def conclusion(w):
    w.getMouse()
    w.close()

def main():
    w = setUp()
    c = userInput()
    displayCircle(w,c)
    conclusion(w)

main()
```

Answer Key  
Question 3

Version 3:

```
from graphics import *

def setUp():
    return GraphWin()

def userInput():
    done = False
    while not done:
        color = input("Enter color (red, green or blue): ")
        if color == "red":
            done = True
        elif color == "green":
            done = True
        elif color == "blue":
            done = True
        else:
            print("Invalid color, please try again")
    return color

def displayCircle(w,c):
    center = Point(100,100)
    circle = Circle(center, 50)
    circle.setFill(c)
    circle.draw(w)

def conclusion(w):
    w.getMouse()
    w.close()

def main():
    w = setUp()
    c = userInput()
    displayCircle(w,c)
    conclusion(w)

main()
```

Answer Key  
Question 3

Version 4:

```
from graphics import *

def setUp():
    return GraphWin()

def userInput():
    done = False
    while not done:
        color = input("Enter color (red, green or blue): ")
        if color == "red":
            done = True
        elif color == "green":
            done = True
        elif color == "blue":
            done = True
        else:
            print("Invalid color, please try again")
    return color

def displayCircle(w,c):
    w.setBackground(c)
    center = Point(100,100)
    circle = Circle(center, 50)
    circle.draw(w)

def conclusion(w):
    w.getMouse()
    w.close()

def main():
    w = setUp()
    c = userInput()
    displayCircle(w,c)
    conclusion(w)

main()
```

**Answer Key**  
**Question 4**

**Version 1:**

```
def q4_1(country, dollars):
    if country == "Japan":
        return (dollars * 83.85)
    elif country == "Indonesia":
        return (dollars * 9639.99)
    elif country == "Hungary":
        return (dollars * 0.00456)
    else:
        return -1
```

**Version 2:**

```
def q4_2(country, dollars):
    if country == "Guatemala":
        return (dollars * 0.13)
    elif country == "Denmark":
        return (dollars * 0.62)
    elif country == "Costa Rica":
        return (dollars * 499.38)
    else:
        return -1
```

**Version 3:**

```
def q4_3(country, dollars):
    if country == "Samoa":
        return (dollars * 2.2)
    elif country == "Venezuela":
        return (dollars * 4.3)
    elif country == "Ukrain":
        return (dollars * 8.1)
    else:
        return -1
```

**Version 4:**

```
def q4_4(country, dollars):
    if country == "Russia":
        return (dollars * 30.8)
    elif country == "Qatar":
        return (dollars * 0.275)
    elif country == "Poland":
        return (dollars * 3.11)
    else:
        return -1
```

**Answer Key**  
**Question 5**

**Version 1:**

- a. 0
- b. 2
- c. 5

**Version 2:**

- a. 6
- b. 24
- c. 120

**Version 3:**

- a. True
- b. False
- c. True

**Version 4:**

- a. []
- b. [1, 2]
- c. [2, 3, 4, 7]



**Answer Key**  
**Question 6**

Version 1:

**SAMBA, BRAZIL**

**CUMBIA, COLOMBIA**

**SYRTAKI, GREECE**

**Hip-hop**

Version 2:

**Samba, Brazil**

**Culsia, Cololsia**

**Syrtaki, Greece**

**Hip-hop**

Version 3:

**Salsa, Brazil**

**Cumbia, Colombia**

**Syrtaki, Greece**

**Hip-hop**

Version 4:

**Simbi, Brizil**

**Cumbii, Colombii**

**Syrtiki, Greece**

**Hip-hop**

Answer Key  
Question 7

Version 1:

```
def q7_1():
    infile = open('in.txt', 'r')
    lines = infile.readlines()
    i = 0
    for line in lines:
        i = i + 1
        if line.find('Python') != -1:
            print("The word 'Python' appears on line",i)
```

q7\_1()

Version 2:

```
def q7_2():
    infile = open('in.txt', 'r')
    lines = infile.readlines()
    i = 0
    for line in lines:
        i = i + 1
        if line.find('Prolog') != -1:
            print("The word 'Prolog' appears on line",i)
```

q7\_2()

**Answer Key**  
**Question 7**

**Version 3:**

```
def q7_3():
    infile = open('in.txt', 'r')
    lines = infile.readlines()
    i = 0
    for line in lines:
        i = i + 1
        if line.find('Java') != -1:
            print("The word 'Java' appears on line",i)
```

q7\_3()

**Version 4:**

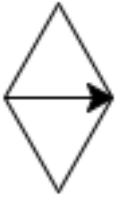
```
def q7_4():
    infile = open('in.txt', 'r')
    lines = infile.readlines()
    i = 0
    for line in lines:
        i = i + 1
        if line.find('Fortran') != -1:
            print("The word 'Fortran' appears on line",i)
```

q7\_4()

**Answer Key  
Question 8**

**Version 1:**

a.



b.



**Version 2:**

a.



b.



**Version 3:**

a.



b.

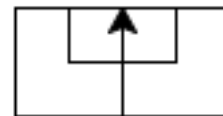


**Version 4:**

a.



b.



## Answer Key Question 9

### Version 1:

```
def pow2(n):  
    if n < 2:  
        return 2  
    else:  
        return 2 * pow2(n-1)
```

### Version 2:

```
def fact(n):  
    if n < 1:  
        return 1  
    else:  
        return n * fact(n-1)
```

### Version 3:

```
def add(n):  
    if n < 1:  
        return 0  
    else:  
        return n + add(n - 1)
```

### Version 4:

```
def fact100(n):  
    if n == 100:  
        return 100  
    else:  
        return n * fact100(n + 1)
```

Answer Key  
Question 10

Version 1:

```
a. def main1():
    printIntro()
    rounds = getInput()
    winner = simGames(rounds)
    printResults(winner)

b. def simGames(rounds):
    p1 = 0
    p2 = 0
    while p1 < rounds / 2 and p2 < rounds / 2:
        if p1_winner():
            p1 += 1
        else:
            p2 += 1

    if p1 > p2:
        return "Player One"
    else:
        return "Player Two"

def p1_winner():
    return randrange(1,7) < randrange(1,7)
```

Answer Key  
Question 10

Version 2:

```
a. def main():
    printIntro()
    money = getInput()
    amount = simGames(money)
    printResults(amount)

b. def simGames(money):
    winAmount = money * 2
    while money > 5 and money < winAmount:
        if wins():
            money += 5
        else:
            money -= 5
    return money

def wins():
    house = randrange(1,31)
    player = randrange(1,31)
    if house > 21 or (player < 22 and player >= house):
        return True
    else:
        return False
```

Answer Key  
Question 10

Version 3:

```
a. def main():
    printIntro()
    money = getInput()
    amount = simGames(money)
    printResults(amount)

b. def simGames(money):
    while money > 0:
        if wins():
            return money + 1000000
        else:
            money -= 1
    return money

def wins():
    house = randrange(1,20001)
    player = randrange(1,20001)
    if player == house:
        return True
    else:
        return False
```



Answer Key  
Question 10

Version 4:

```
a. def main():
    printIntro()
    chance = getInput()
    married = simGames(chance)
    printResults(married)

b. def simGames(chance):
    numDates = 0
    numFlicks = 0
    while numDates < 52 and numFlicks < 10:
        numDates += 1
        if flick(chance):
            numFlicks += 1
    if numFlicks > 10:
        return False
    else:
        return True

def flick(chance):
    if randrange(1,3) < 2:
        if random() < chance:
            return True
    return False
```