Answer Key

Question 1

Version 1:

```
3 7
3 1 3.5
10 4
```

Version 2:

```
1 6
2 0 2.0
7 5
```

Version 3:

```
2 9
1 4 1.8
11 7
```

Version 4:

```
3 10
2 2 2.5
13 7
```

Answer Key

Question 2

Version 1:

```
hours = eval(input("Enter the number of hours since the start of the day: "))
minutes = eval(input("Enter the number of minutes since the start of the hour: "))
seconds = (hours * 60 * 60) + (minutes * 60)
print("Seconds since start of day = ", seconds)
```

Version 2:

```
days = eval(input("Enter the number of days since the start of the month: "))
hours = eval(input("Enter the number of hours since the start of the day: "))
minutes = (days * 24 * 60) + (hours * 60)
print("Minutes since start of month = ", minutes)
```

Version 3:

```
days = eval(input("Enter the number of days since the start of the month: "))
hours = eval(input("Enter the number of hours since the start of the day: "))
seconds = (days * 24 * 3600) + (hours * 3600)
print("Seconds since start of month = ", seconds)
```

Version 4:

```
hours = eval(input("Enter the number of hours since the start of the day: "))
minutes = eval(input("Enter the number of minutes since the start of the hour: "))
fraction = (hours + minutes/60)/24
print("Fraction of day = ", fraction)
```

Answer Key

Question 3

Version 1:

```
a. 6*(x + 3)**2 - 9*x*y + 3*y**w
b. pi / sin(4*pi)
c. c = (sqrt(a+b))**3
d. F = log((x-1)/y)
```

Version 2:

```
a. 4*a**6 + 7*a*b + b**a
b. tan((pi/8)-k)
c. a = sqrt(b**2 + c**2 - 2*b*c*cos(A))
d. T = 2*pi*sqrt(M/k)
```

Version 3:

```
a. (x-1)**8 - y**x + 7*x*y
b. log(x)/(6*pi)
c. b = (sqrt(x-1))**7
d. f = c*(cos(3-x)/(k-2))
```

Version 4:

```
a. 4*y - 3**(y+z) + 7*(z-3)
b. (4*k)/cos(8*pi)
c. c = (sqrt(2*a))**9
d. A = (r-3*q)/log(n)
```

Answer Key

Question 4

Version 1:

```
a. 1 True                    b. 4 1.0
   1 True                       8 2.0
   2 False                      12 3.0
   2 True                       16 4.0
   2 True                       20 5.0
```

Version 2:

```
a. 1 False                   b. 6 1.5
   2 False                      12 3.0
   2 False                      18 4.5
   3 True                       24 6.0
   3 False                      30 7.5
```

Version 3:

```
a. 1 False                   b. 10 2.5
   0 False                      20 5.0
   1 False                      30 7.5
   0 False                      40 10.0
   1 True                       50 12.5
```

Version 4:

```
a. 1 False                   b. 14 3.5
   2 False                      22 5.5
   0 False                      30 7.5
   1 True                       38 9.5
   2 False                      46 11.5
```

Answer Key

Question 5

Version 1:

```
5
7
9
11
13
Whew!
```

Version 2:

```
3
4
5
6
7
Whew!
```

Version 3:

```
4
6
8
10
12
Whew
```

Version 4:

```
7
10
13
16
19
Whew!
```

Answer Key

Question 6

Version 1:

```
salary = eval(input("Enter the current salary:"))
if (salary <= 50000):
    salary = salary * 1.1
elif (salary < 100000):
    salary = salary * 1.05
else:
    salary = salary * 1.01
print("The new salary is:", salary)
```

Version 2:

```
salary = eval(input("Enter the current salary:"))
if (salary < 50000):
    salary = salary * 1.05
elif (salary < 100000):
    salary = salary * 1.10
else:
    salary = salary * 1.0
print("The new salary is:", salary)
```

Version 3:

```
salary = eval(input("Enter the current salary:"))
if (salary <= 20000):
    salary = salary * 1.10
elif (salary < 40000):
    salary = salary * 1.05
else:
    salary = salary * 1.0
print("The new salary is:", salary)
```

Version 4:

```
salary = eval(input("Enter the current salary:"))
if (salary < 20000):
    salary = salary * 1.10
elif (salary < 40000):
    salary = salary * 1.05
else:
    salary = salary * 1.01
print("The new salary is:", salary)
```

Answer Key

Question 7

Version 1:

```
var = 6
while var < 14:
    print(var)
    var = var + 2
```

Version 2:

```
var = 6
while var < 18:
    print(var)
    var = var + 3
```

Version 3:

```
var = 5
while var < 25:
    print(var)
    var = var + 5
```

Version 4:

```
var = 2
while var < 21:
     print(var)
     var = var + 6
```

Answer Key

Question 8

Version 1:

```
from math import *
cosine = 0.0
count = 0
while cosine <= 0.5:
    num = eval(input("Please enter a number:"))
    count = count + 1
    cosine = cos(num)
    if cosine <= 0.5:
        print("Try again")
print("It took", count, "tries")
```

Version 2:

```
from math import *
sine = 0.0
count = 0
while sine <= 0.5:
    num = eval(input("Please enter a number:"))
    count = count + 1
    sine = sin(num)
    if sine <= 0.5:
        print("Try again")
print("It took", count, "tries")
```

Answer Key

Question 8

Version 3:

```
from math import *
tangent = 0.0
count = 0
while tangent <= 0.5:
    num = eval(input("Please enter a number:"))
    count = count + 1
    tangent = tan(num)
    if tangent <= 0.5:
        print("Try again")
print("It took", count, "tries")
```

Version 4:

```
from math import *
squareroot = 0
count = 0
while squareroot <= 5:
    num = eval(input("Please enter a number:"))
    count = count + 1
    squareroot = sqrt(num)
    if squareroot <= 5:
        print("Try again")
print("It took", count, "tries")
```

Answer Key

Question 9

Version 1:

```
year = eval(input("Enter model year:"))
doors = eval(input("Enter the number of doors (2 or 4):"))
color = input("Enter the color:")
cost=5000
if (color == "purple") or (color == "pink"):
    cost = cost + 2000
if (doors == 4):
    cost = cost + 100;
elif (doors == 2):
    cost = cost - 500
if year < 2009:
    cost = cost * .5
print("Tue cost of your car is", cost)
```

Version 2:

```
color = input("Enter the color:")
usb = input("USB port (y or n):")
os = input("Windows or Linux (w or l):")
cost=1000
if (color == "blue") or (color == "green"):
    cost = cost + 200
if (usb == "y"):
    cost = cost + 100;
elif (usb == "n"):
    cost = cost - 150
if (os == "w"):
    cost = cost * .5
print("Tue cost of your laptop is", cost)
```

Answer Key

Question 9

Version 3:

```
pattern = input("Enter the pattern:")
year = eval(input("Enter the year:"))
length = eval(input("Enter the length:"))
cost=1500
if (pattern == "zebra") or (pattern == "cloud"):
    cost = cost + 1000
if (length > 78):
    cost = cost + 100;
elif (length < 74):
    cost = cost - 500
if (year < 1900):
    cost = cost * 2
print("Tue cost of your sofa is", cost)
```

Version 4:

```
weight = eval(input("Enter the weight (oz):"))
ram = eval(input("Enter amount of RAM:"))
smart = input("Smart phone? (y or n):")
cost=50
if (weight > 4):
    cost = cost - 25
if ( ram > 16) and (smart == "y"):
    cost = cost + 700;
elif (ram <= 16) and (smart == "y"):
    cost = cost + 500
print("Tue cost of your cell phone", cost)
```

Answer Key

Question 10

Version 1:

```
guests = eval(input("Enter the number of guests in the group:"))
total = eval(input("Enter the total price for the group:"))
if (guests > 5) or (total >= 200):
    total = total - total * 0.05
print("The total amount to be paid by the group is",total)
```

Version 2:

```
guests = eval(input("Enter the number of guests in the group:"))
total = eval(input("Enter the total price for the group:"))
if (guests > 7) or (total >= 150):
    total = total - total * 0.04
print("The total amount to be paid by the group is",total)
```

Version 3:

```
guests = eval(input("Enter the number of guests in the group:"))
total = eval(input("Enter the total price for the group:"))
if (guests > 6) or (total >= 320):
    total = total - total * 0.07
print("The total amount to be paid by the group is",total)
```

Version 4:

```
guests = eval(input("Enter the number of guests in the group:"))
total = eval(input("Enter the total price for the group:"))
if (guests > 8) or (total >= 400):
    total = total - total * 0.11
print("The total amount to be paid by the group is",total)
```