Exam 1 – Spring 2013

Answer Key

Question 1

Version 1

```
9 4 1 4.5
4 1 1 1
```

Version 2

```
10 2 2 2.5
 2 2 2 0
```

Version 3

```
7 3 1 3.5
3 1 1 1
```

Version 4

```
11 5 1 5.5
 5 1 1 4
```

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Answer Key

Question 2

Version 1

```
inches = eval(input("Please enter the number of inches: "))
cm = inches * 2.54
print(inches, "in =", cm, "cm")
```

Version 2

```
cm = eval(input("Please enter the number of centimeters: "))
inches = cm * 0.3937
print(cm, "cm =", inches, "in")
```

Version 3

```
kg = eval(input("Please enter the number of kilograms: "))
oz = kg * 35.2
print(kg, "kg =", oz, "oz")
```

Version 4

```
oz = eval(input("Please enter the number of ounces: "))
kg = oz * 0.028409
print(oz, "oz =", kg, "kg")
```

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Answer Key

Question 3

Version 1

a. `2*math.pow(x,8) + 2*x*y + 3*math.pow(y,4)`

b. `math.cos(math.pi/4)`

c. `c = math.sqrt(a*a + b*b)`

d. `F = G*(m1*m2)/(r*r)`

Version 2

a. `4*math.pow(a,6) + 7*a*b + math.pow(b,5)`

b. `math.tan(math.pi/8 - k)`

c. `a = math.sqrt(b*b + c*c - 2*b*c*math.cos(A))`

d. `T = 2*math.pi*math.sqrt(M/k)`

Version 3

a. `6*math.pow(x,8) - 4*x*y + 7*math.pow(y,9)`

b. `math.sin(math.pi/6 - w)`

c. `b = math.sqrt(a*a + c*c - 2*a*c*math.cos(B))`

d. `f = c*R*math.sqrt(1/n - 1/m)`

Version 4

a. `4*math.pow(y,6) - 5*y*z + 6*math.pow(z,5)`

b. `math.tan(math.pi/8) - 1`

c. `b = math.sqrt(a*a + b*b - 2*a*b*math.cos(C))`

d. `f = P*math.pow((1 + r/n),(n*t))`

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Answer Key

Question 4

Version 1

```
a.  4 1.0
   16 4.0
   28 7.0
   40 10.0
   52 13.0
```

```
b.  0 : 0
    1 : 1
   -1 : 1
    2 : 2
   -2 : 2
    3 : 3
   -3 : 3
```

Version 2

```
a.  8 2.0
   16 4.0
   24 6.0
   32 8.0
   40 10.0
```

```
b.  1 :  3
   -1 : -3
    0 :  0
    2 :  6
   -2 : -6
    3 :  9
   -3 : -9
```

Version 3

```
a.  4 1.0
    8 2.0
   12 3.0
   16 4.0
   20 5.0
```

```
b.  1 : 1
   -1 : 1
    3 : 9
   -3 : 9
    0 : 0
    2 : 4
   -2 : 4
```

Version 4

```
a. 12 3.0
   24 6.0
   36 9.0
   48 12.0
   60 15.0
```

```
b.  3 :  12
   -3 : -12
    0 :  0
    1 :  4
   -1 : -4
    2 :  8
   -2 : -8
```

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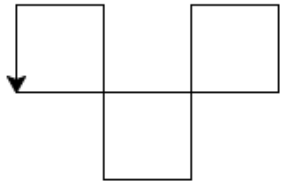
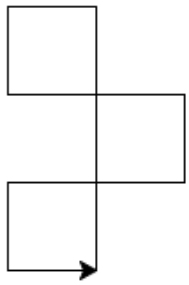
Answer Key

Question 5

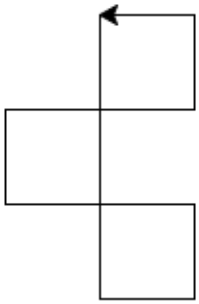
Version 1



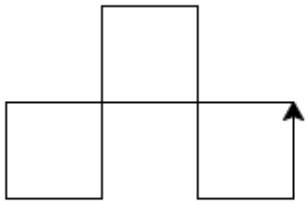
Version 2



Version 3



Version 4



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Answer Key

Question 6

Version 1

```
from math import *
x,y = eval(input("Please input your coordinates x,y: "))
d = sqrt((x - 10)**2 + (y - 12)**2)
print("d =",d)
```

Version 2

```
from math import *
a,b = eval(input("Please input short sides of a right triangle a,b: "))
c = sqrt(a**2 + b**2)
print("c =",c)
```

Version 3

```
from math import *
a,c = eval(input("Please input short side (a) and hypotenuse (c) of a right triangle: "))
b = sqrt(c**2 - a**2)
print("b =",b)
```

Version 4

```
from math import *
b,c = eval(input("Please input short side (b) and hypotenuse (c) of a right triangle: "))
a = sqrt(c**2 - b**2)
print("a =",a)
```

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Answer Key

Question 7

Version 1

```
from graphics import *

win = GraphWin()
win.setBackground("white")

p1 = Point(25,75)
p2 = Point(75,125)
p3 = Point(125,75)
p4 = Point(175,125)

r1 = Rectangle(p1,p2)
r2 = Rectangle(p2,p3)
r3 = Rectangle(p3,p4)

r1.draw(win)
r2.draw(win)
r3.draw(win)

win.getMouse()
win.close()
```

Version 2

```
from graphics import *

win = GraphWin()
win.setBackground("white")

p1 = Point(50,100)
p2 = Point(100,100)
p3 = Point(150,100)

c1 = Circle(p1,40)
c2 = Circle(p2,40)
c3 = Circle(p3,40)

c1.draw(win)
c2.draw(win)
c3.draw(win)

win.getMouse()
win.close()
```

Version 3

```
from graphics import *

win = GraphWin()
win.setBackground("white")

p1 = Point(15,70)
p2 = Point(65,120)

p3 = Point(75,70)
p4 = Point(125,120)

p5 = Point(135,70)
p6 = Point(185,120)

r1 = Rectangle(p1,p2)
r2 = Rectangle(p3,p4)
r3 = Rectangle(p5,p6)

r1.draw(win)
r2.draw(win)
r3.draw(win)

win.getMouse()
win.close()
```

Version 4

```
from graphics import *

win = GraphWin()
win.setBackground("white")

p1 = Point(50,100)
p2 = Point(100,100)
p3 = Point(150,100)

c1 = Circle(p1,20)
c2 = Circle(p2,20)
c3 = Circle(p3,20)

c1.draw(win)
c2.draw(win)
c3.draw(win)

win.getMouse()
win.close()
```

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Answer Key

Question 8

Version 1

```
a. 2
   8
   20
   40
   70
```

```
b. 4.0
   20.0
   120.0
   840.0
   6720.0
```

Version 2

```
a. 25
   49
   70
   86
   95
```

```
b. 2.0
   8.0
   48.0
   384.0
   3840.0
```

Version 3

```
a. 6
   18
   38
   68
   110
```

```
b. 3.0
   18.0
   162.0
   1944.0
   29160.0
```

Version 4

```
a. 20
   40
   58
   72
   80
```

```
b. 4.0
   20.0
   120.0
   840.0
   6720.0
```

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Answer Key

Question 9

Version 1

```
from graphics import *

def q9_1():
    win = GraphWin("Click 3 Times")
    p1 = win.getMouse()
    p1.draw(win)
    c1 = Circle(p1, 30)
    c1.draw(win)
    p2 = win.getMouse()
    p2.draw(win)
    c2 = Circle(p2, 20)
    c2.draw(win)
    p3 = win.getMouse()
    p3.draw(win)
    c3 = Circle(p3, 10)
    c3.draw(win)
q9_1()
```

Version 2

```
from graphics import *

def q9_2():
    win = GraphWin("Click 3 Times")
    p1 = win.getMouse()
    p1.draw(win)
    p2 = win.getMouse()
    p2.draw(win)
    p3 = win.getMouse()
    p3.draw(win)
    pol = Polygon(p1,p2,p3)
    pol.draw(win)
q9_2()
```

Version 3

```
from graphics import *

def q9_3():
    win = GraphWin("Click 4 Times")
    p1 = win.getMouse()
    p1.draw(win)
    p2 = win.getMouse()
    p2.draw(win)
    p3 = win.getMouse()
    p3.draw(win)
    p4 = win.getMouse()
    p4.draw(win)
    r1 = Rectangle(p1,p2)
    r1.draw(win)
    r2 = Rectangle(p3,p4)
    r2.draw(win)
q9_3()
```

Version 4

```
from graphics import *

def q9_2():
    win = GraphWin("Click 4 Times")
    p1 = win.getMouse()
    p1.draw(win)
    p2 = win.getMouse()
    p2.draw(win)
    p3 = win.getMouse()
    p3.draw(win)
    p4 = win.getMouse()
    p4.draw(win)
    pol = Polygon(p1,p2,p3, p4)
    pol.draw(win)
q9_2()
```

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Answer Key

Question 10

Version 1

```
def q10_1():
     friends = eval(input("Number of Friends: "))
     dollars = eval(input("Amount Each Friend Will Put In Dollars: "))
     totalDollars = dollars * friends
     print("The total in Dollars is $",totalDollars)
     totalColones = totalDollars * 500
     print("The total in Colones is",totalColones)
     colones = totalColones / friends
     print("Each friend's share in Colones is:", colones)

q10_1()
```

Version 2

```
def q10_2():
   friends = eval(input("Number of Friends: "))
   dollars = eval(input("Amount Each Friend Will Put In Dollars: "))
   totalDollars = dollars * friends
   print("The total in Dollars is $",totalDollars)
   totalPounds = totalDollars * 0.000664
   print("The total in Lebanese Pounds is",totalPounds)
   pounds = totalPounds / friends
   print("Each friend's share in Lebanese Pounds is:", pounds)

q10_2()
```

Version 3

```
def q10_3():
    friends = eval(input("Number of Friends: "))
    dollars = eval(input("Amount Each Friend Will Put In Dollars: "))
    totalDollars = dollars * friends
    print("The total in Dollars is $",totalDollars)
    totalRupiahs = totalDollars * 9639.99
    print("The total in Indonesian Rupiahs",totalRupiahs)
    rupiahs = totalRupiahs / friends
    print("Each friend's share in Indonesian Rupiahs is:", rupiahs)

q10_3()
```

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Answer Key

Question 10

Version 4

```
def q10_4():
    friends = eval(input("Number of Friends: "))
    dollars = eval(input("Amount Each Friend Will Put In Dollars: "))
    totalDollars = dollars * friends
    print("The total in Dollars is $",totalDollars)
    totalRials = totalDollars * 0.00477
    print("The total in Yemeni Rials",totalRials)
    rials = totalRials / friends
    print("Each friend's share in Yemeni Rials is:", rials)

q10_4()
```