

# Grade 10 – Unit 2 – Solutions

*Grade 10 – p 55 – Activity 1 (a)*

Built in functions:

input

int

print

User defined function:

add

average

difference

*Grade 10 – p 55 – Activity 1 (b)*

Function definitions:

Lines 2, 7 & 11

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Function calls:

Lines 18, 19, 21, 22, 23, 25 & 26

*Grade 10 – p 55 – Activity 1 (c)*

data 1 & data 4.

*Grade 10 – p 55 – Activity 1 (d)*

ourTotal

*Grade 10 – p 55 – Activity 1 (e)*

ourDifference

No	Problem description	Function name	Input	Return value or outputs
1	a function that takes two floating point numbers and adds them	Add()	a(float) b(float)	Sum(float)
2	a function used to calculate the area of circle.	circle_area()	a(float)	area(float)
3	a function that returns the highest of three numbers	highest_numbre	a(float) b(float) c(float)	highest(float)
4	a function that counts the number of words in a file	count_numbers()	words	total_number(int)
5	a function which checks if the password a user has entered is correct.	check_password()	password(string)	answer(string)
6	a function to calculate the perimeter of a rectangle using the formula $p = 2w + 2h$ .	calculate_perimeter()	width(float) height(float)	perimeter(float)
7	a function to calculate the force between two electric charges $q_1$ and $q_2$ using Coulomb's Law	calculate_force	$q_1$ (float1) $q_2$ (float2)	force(float)
8	a function to check if a number is positive, negative or zero	check_number()	num(int)	answer(string)

9	a function which returns the atmospheric level given the height above sea level	calculate_level()	height(float)	level(float)
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Grade 10 – p 56 – Activity 2 (b)

1.

```

1 #Function to print the product of two floats
2 def sum(a, b):
3     product = a + b
4     return product

```

6.

```

1 #Program to print the perimeter of a rectangle
2 def calculatePerimeter (width, height):
3     perimeter = (2 * width) + (2 * height)
4     print("The perimeter of the rectangle is:", perimeter)

```

Grade 10 – p 57 – Activity 3

No	Problem	Function calling
1	a function circleArea (radius) used to calculate the area of a circle from its radius; returns the area	Area = circleArea(radius)
2	a function add (x, y) that adds two numbers and returns their sum	total = sum(a, b)
3	a function getHighest (a, b, c) that returns the highest of three numbers	highest = getHighest(a, b, c)

4	a function <code>passCheck</code> (password) to check if the password a user has entered is correct; returns true if the password is correct and false otherwise	<code>ValidPass= passCheck</code> (password)
5	a function <code>graviforce</code> (m1, m2, d) that returns the gravitation force between two masses m1 and m2 given the distance between them	<code>Gforce= graviforce(m1, m2, d)</code>
6	a function to <code>cuboidVolume</code> (length) used to calculate and return the volume of a cuboid given its side's length	<code>volume = cuboidVolume(l)</code>
7	a function <code>getBalance</code> (accountNumber) that returns the balance for a bank account	<code>balance = getBalance(account)</code>
8	a function <code>getStorage</code> () to check the storage space left on your hard drive	<code>storageLeft = getStorage()</code>

Grade 10 – p 60 – Activity 4(a)

We import function from other modules to reuse code that built into Python. Doing this saves time.

Grade 10 – p 60 – Activity 4(b)

```
1 #Program to calculate distance between two points
2 from math import sqrt
3
4
5 def distance(x1, y1, x2, y2):
6     dis = sqrt(((x2-x1)**2)+((y2-y1)**2))
7     print(dis)
8
9
10 distance(2, 3, 10, 50)
11
```

Grade 10 – p 61 – Activity 4(c)

```
1 from abc import xyz
```

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Grade 10 – p 61 – Activity 4(d)

```
1 #Program to print the current date and time
2 import datetime
3 now = datetime.datetime.now()
4 print("Current date and time : ")
5 print(now.strftime("%Y-%m-%d %H:%M:%S"))
```

```
1 #Program convert angles from degrees to radians and radians
2 #to degrees
3 from math import *
4
5 deg = input("Enter the degree value: ")
6 rad = input("Enter radian value: ")
7
8 deg = float(deg)
9 deg = radians(deg)
10 rad = float(rad)
11 rad = degrees(rad)
12
13
14 print("The degree value converted to radians: ", deg)
15 print("The radian value converted to degrees: ", rad)
16
```

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```
1 #Function that returns the square of a number
2
3 #Define function take takes in "n" as a parameter
4 def square(n):
5
6 #Calculation for squaring a number
7     sq = n**2
8 #return the square of the inputted parameter
9     return sq
10
11
12 num = 4
13 #Call the function with n as a parameter.
14 s = square(num)
15 print("Square root of", num,":", s)
```

```
1 #Program that returns area of a triangle
2
3 #Define a function that takes two parameter
4 def area(b, h):
5 #Calculation for are of triangle
6     a = 0.5 * (b * h)
7 #Return the result
8     return a
9
10 base = 5
11 height = 9
12 #Call the area function with the base and height variables as
13 #parameters and assign the #function result to "tArea" variable
14 tArea = area(base, height)
15
16 print('Area of triangle:', tArea)
```

```
1 #Program calculates duration
2
3 #Define function with two input parameters
4 def duration(s, d):
5 #Calculate for time (time = distance/speed)
6     dur = d / s
7     return dur
8
9 distance = 187
10 speed = 90
11 #Call the duration function with the distance and speed
12 #variables as parameters and assign the function result to
13 time #variable
14
15 time = duration(speed, distance)
```

```
16 print("Time it will take to travel from Fujairah to Al Ain:",  
time , "hours")
```

Grade 10 – p 63 – End of unit Activities (d)

```
1 #Program to compute the absolute product of three numbers  
2  
3 #Import the fabs function from the math module  
4 from math import fabs  
5  
6 #Define a function that takes in three parameters  
7 def absolute_product(x, y, z):  
8     Compute the product of the three numbers  
9     product = x + y + z  
10 #Call the fabs function with the product variables as the  
11 parameter to get the absolute value  
12     abProduct = fabs(product)  
13     return abProduct  
14  
15 #Call the absolute_product function with three numbers as  
16 #parameters and store the result in the total variable  
17 total = absolute_product(2, -4, 8)  
18 print("Absolute product", total)
```



```
1 #Import the sqrt function from the math module
2 from math import sqrt
3
4 #Define a function that takes four parameters
5 def line_distance(u, d, l, r):
6 #Find y2 but computing the difference between r and l
7     y2 = r - l
8 #Find y2 but computing the difference between u and d
9     x2 = u - d
10 #Calculation for finding line distance
11     dis = sqrt((x2 ** 2) + (y2 ** 2))
12     return dis
13
14 #Call the line_distance function with 4 parameters and assign
15 #the result to lineDis
16 lineDis = line_distance(3, 1, 2, 5)
17 print("Distance Robot has travelled:", lineDis)
```