Test 1 – Part I:

Question 7 – example (values will be different for different question)

Calculate the intensity of a wave in decibels (dB) if the power transferred is 0.034 W and the area through which the wave is transferred is 1,234 square meters.

Please give your answer to 1 decimal place, no need to type in unit.

Solution

Power transferred = 0.034 W

area = 1,234 m^2

I = P/A = 0.000027553

$\beta = 10\log(I/Io) = 74.4$ dB

Question 8 – example (values will be different for different question)

A hiker on a mountain heard a thunder sound t = 8.3 s after he saw lightning among distance clouds.

Assuming the speed of sound is v = 333.8 m/s. Estimate the distance d (m) between the hiker and the lightning clouds.

Note:

1) Round your answer to integer in unit m.

2) Just type in the figure, no unit is needed

Solution

Since the speed of light is quiet high, we can safely assume it to infinity, i.e. the the hiker can see the light right after the thunder happen

Then, it is a simple question,

distance = speed * time = 333.8×8.3 = 2770.54 m

Test 1 – Part II

Questions 4

Write a function using **def** which can return the value $f(x, y) = \sqrt{4x^2 + y^2}$ of two input integer variables x and y. Then use print command to print out the return value.

Solution:

function

```
def findresult(x, y):
    return (4 * x**2 + y**2)**0.5
```

command to call the function findresult

```
print(findresult(1,2))
```