Write a function that generates one of 3 numbers according to given probabilities

You are given a function rand(a, b) which generates equiprobable random numbers between [a, b] inclusive. Generate 3 numbers x, y, z with probability P(x), P(y), P(z) such that P(x) + P(y) + P(z) = 1 using the given rand(a,b) function.

The idea is to utilize the equiprobable feature of the rand(a,b) provided. ***Let the given probabilities be in percentage form, for example P(x)=40%, P(y)=25%, P(z)=35%.***.

Following are the detailed steps.
1) Generate a random number between 1 and 100. Since they are equiprobable, the probability of each number appearing is 1/100.
2) Following are some important points to note about generated random number ‘r’.
a) ‘r’ is smaller than or equal to P(x) with probability P(x)/100.
b) ‘r’ is greater than P(x) and smaller than or equal P(x) + P(y) with P(y)/100.
c) ‘r’ is greater than P(x) + P(y) and smaller than or equal 100 (or P(x) + P(y) + P(z)) with probability P(z)/100.

```
// This function generates 'x' with probability px/100,
// probability py/100  and 'z' with probability pz/100:
// Assumption: px + py + pz = 100 where px, py and pz li
// between 0 to 100
int random(int x, int y, int z, int px, int py, int pz)
{
        // Generate a number from 1 to 100
        int r = rand(1, 100);

        // r is smaller than px with probability px/100
        if (r <= px)
            return x;

         // r is greater than px and smaller than or equ
         // with probability py/100
```

```
        if (r <= (px+py))
            return y;

         // r is greater than px+py and smaller than or
         // with probability pz/100
        else
            return z;
}
```

This function will solve the purpose of generating 3 numbers with given three probabilities.