



# Daily Coding Problem #71

## Problem

This problem was asked by Two Sigma.

Using a function `rand7()` that returns an integer from 1 to 7 (inclusive) with uniform probability, implement a function `rand5()` that returns an integer from 1 to 5 (inclusive).

## Solution

This problem is simpler than going from `rand5()` to `rand7()`. We'll do something similar:

- Roll `rand7()`.
- If the result is between 1 and 5, then return it.
- If the result is 6 or 7, then reroll.

Since the distribution of `[1, 5]` is uniform -- each has a  $1/7$  chance of being rolled, then our `rand5()` will be uniform.

```
def rand5():  
    r = rand7()  
    if 1 <= r <= 5:  
        return r  
    return rand5()
```

This could potentially take forever (although with a very low probability), if we keep on getting 6 or 7s.

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