Workshop 1: Designing Functions

CAS CS 320: Concepts of Programming Languages

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Name:

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1. Write tail-recursive versions of the functions `int_of_digits` and `digits_of_int` from today's workshop.
2. Consider the following Python code for finding Pythagorean triples , i.e., (i, j, k) such that $i^2 + j^2 = k^2$.

```python
def gcd(i, j):
    while i != j:
        if i > j:
            i = i - j
        else:
            j = j - i
    return i

def py_triples(n):
    out = []
    for i in range(1, n + 1):
        for j in range(i, n + 1):
            for k in range(j, n + 1):
                if i * i + j * j == k * k and gcd(i, gcd(j, k)) == 1:
                    out.append((i, j, k))
    return out
```

Write the equivalent OCaml functions.