Python recurrence relation examples

[Recurrence relations in Python](#)

Additional Exercises:

8.2.1 a-c (use python)

Summations

Summations

$$\sum_{i=1}^{4} i = 1 + 2 + 3 + 4 = 10$$

In Python:

```
sum(range(1,5))

reduce(add, range(1,5))

reduce(lambda a,b: a+b, range(1,5))
```

Examples

Summations

$$\sum_{i=1}^{4} i^2$$

```
sum([i**2 for i in range(1,5)])
```

or

```
reduce(add, map(lambda i: i**2, range(1,5)))
```

Additional Exercises:

8.3.1 a-e (use python)

Summations – Closed Forms

Closed form arithmetic sequence:

$$\sum_{k=0}^{n-1} (a + kd) = an + \frac{d(n-1)n}{2}$$

Closed form geometric sequence:

$$\sum_{k=0}^{n-1} (a \cdot r^k) = \frac{a(r^n - 1)}{r - 1}$$

Additional Exercises:

8.3.2 a-e

8.3.3 a-b

8.3.4 a-b

8.3.5