

# Chapter 1: Foundations

CS 201

## 1.1 Algorithms

an algorithm takes an input + produces an output

↳ seq. of computational steps

↳ correct if every input has an output

## Exercises

1.1.1 - real world example of sorting: sorting by price

1.1.2 - measure of efficiency: memory, space, speed, etc

1.1.3 - a data structure: linked-list

Strengths/limitations: able to insert/delete, not able to access directly

1.1.4 - Shortest-Path vs. Travelling Salesman

Similar: both find shortest path

Different: T.S. has more constraints

↳ req. path between mult. points + return to origin

1.1.5 - Real world only best solution will do:

- Find GCM of 2 pos. integers

Real world approx. answer will do:

- Find solution of differential equations