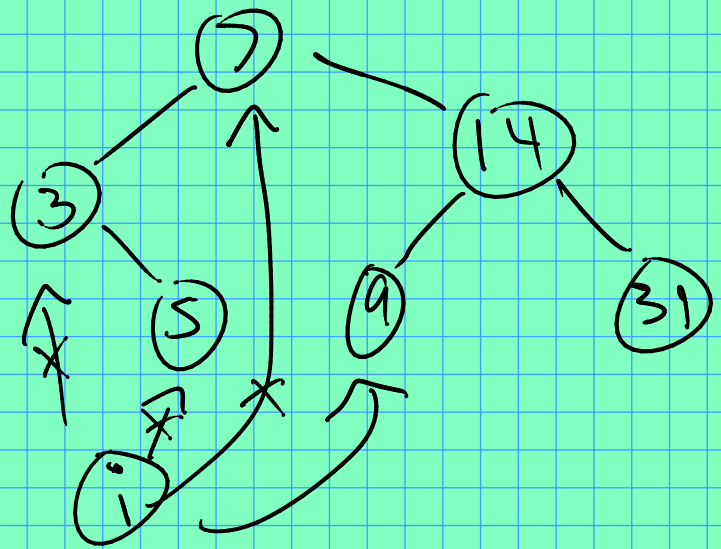
Sets

Kind of model mathematical sets.

In particular, they store unique elements.

	Vector	Set
unique elements?	no	yes
Time for searching	up to n steps (n=size)	$\log_2(n)$ (n = size)
access ith element ("random access")	V[i]. (constant time)	No real equivalent.
add an element:	v.push_back(x)	S.insert(x)
remove element	V.pop_back()	S.erase(i)...
dump elements	for(i=0...) cout << V[i]	use "iterators"...




```
for (set<int>::iterator i = S.begin();
     i != S.end(); i++)
  cout << *i << endl;
```

int i = 0;

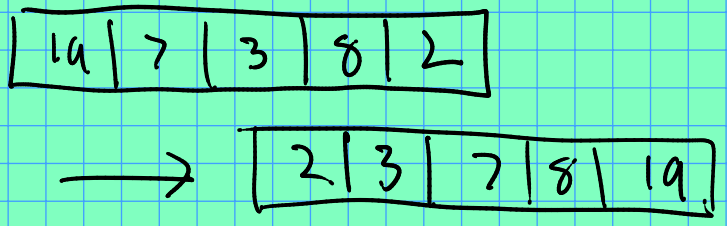
i != V.size()

V[i] (for arrays: *(V+i))

One more thing: how to search?

```
if(S.find(7) != S.end())
    // 7 was found.
```

Back to vectors: how to sort?




```
void sort(vector<int>& V) {
    ...
}
```

Any ideas?

- find smallest elem in V[0...size-1]
- swap V[0] w/ V[smallest]
- Repeat above, but using V[1...size-1]

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