

# Vector

$\begin{pmatrix} 3 \\ 4 \\ 7 \end{pmatrix} \in \text{that's a vector}$

↑  
emits view

need: number w/division

math-speak: "field"  $\leftarrow$  not the integers  
 $\leftarrow$  reals! fractions! complex!  
 $\leftarrow$  GF(2)

Definition A set  $V$  is called a vector space iff:

-  $v+w \in V$  for  $v, w \in V$

-  $\alpha v \in V$  for  $\alpha$  a number and  $v \in V$

number  $\rightarrow$  "scalar", as opposed to vectors

```
interface Vector {  
    Vector add(Vector v, Vector w);  
    ...  
}
```