

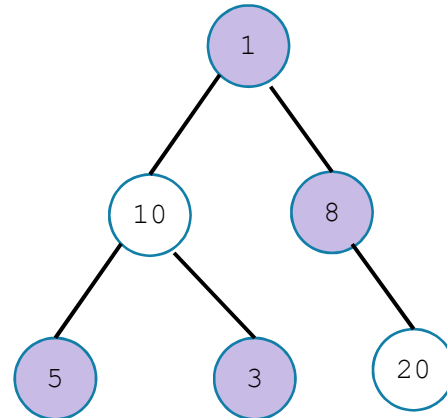
## Vertex Cover

### Vertex Cover

A set  $S$  of vertices is a vertex cover if for every edge  $(u, v)$ :  $u$  is in  $S$ , or  $v$  is in  $S$ , (or both)

Notice, the minimum weight vertex cover might have both endpoints of some edges

Even though only one of 1, 8 is required on the edge between them, they are both required for other edges.



## Recurrence

0	1	2	3	4	5	6	7
5	-6	3	6	-5	2	8	10
Parent recursive calls		Current $i$	Recursive call is best value in this area				

[pollev.com/robbie](https://pollev.com/robbie)

Try to write a different recurrence for longest increasing subsequence.

$LISAlt(i, j)$  is "Number of elements of the maximum increasing subsequence from  $i, \dots, n$  where smallest element of the sequence is  $A[j]$ "

## Subset Sum

Write an English description of what you want to calculate

Write a recurrence

Give a sentence or two (in English) of why your recurrence should work.

## Longest Increasing Subsequence, Round 3

Let's ask "what's the best choice for the next element" (instead of just "is this the next element")

What's the best choice?

It has to be greater than our current element, after that it's the one that can lead to the longest subsequence.

So, (since we're starting with our current element), the question is "what's the longest increasing subsequence, starting at index  $i$ "