

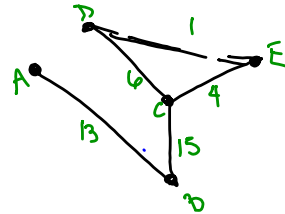
Weighted Graphs

They are the same as the graphs we have been looking at, except that they have numbers on them. Often they will be asking you for the **shortest distance** between two points or the **lowest cost**

You need to add up the numbers associated with the edges.

Weighted graphs

• have \mathbb{N} on them



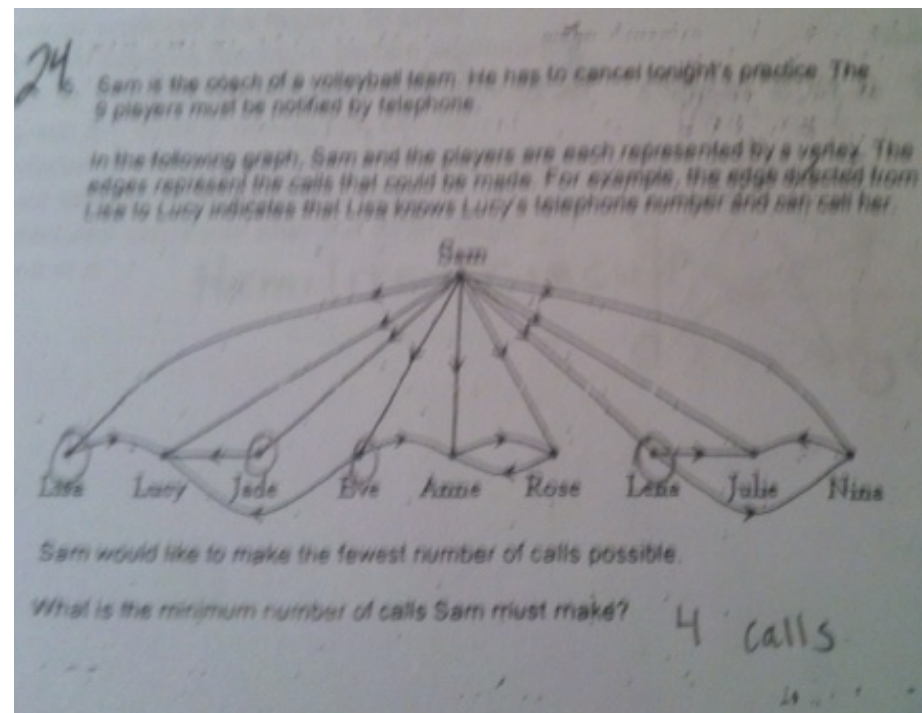
Find the shortest path to get
from A to D.

$$\begin{array}{rcl} AB = 13 & & CD = 6 \\ BC = 15 & & \\ CE = 4 & & \\ ED = 1 & & \\ \hline & & 33 \end{array}$$

Directed graphs

In this case, the graph would have **arrows** on it. This means you can only travel in the direction specified on the graph.

(Ex: phone chain problem from last week)

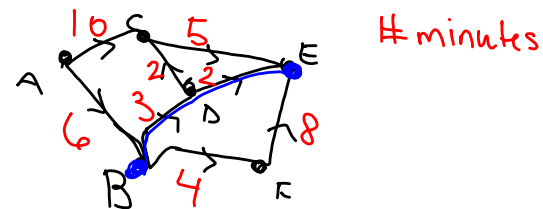


Combination:

We can have a graph that is a combination of weighted and directed. Meaning that it will contain **numbers and arrows**.

The trick here is that generally they are going to ask you for the shortest path between two points, but the shortest numerical path is usually not possible to follow by the arrows. Watch out for that!!

Combination: D+W graph



Find the ^{shortest} length of the chain starting at B and finishing at E.

$BD = 3$	$BF = 4$	$BE = 3$
$DE = 2$	$FE = 8$	$DC = 5$
$\frac{5}{5}$	$\frac{12}{10}$	$CE = \frac{5}{10}$