

Pasta Party!

The pasta party has 8 main tasks. Some tasks cannot be done until others are finished. No two tasks can be done at the same time by a single person, though theoretically tasks could be done at the same time if you had more than a single person. You already have the pasta (hence the great idea), but don't have ingredients for salad, bread, or sauce. Also the counters and dishes are nasty.

Name	Duration	Need to finish these first
M: Make the pasta	34 minutes	(P) Put out the pots and pans
S: Make the sauce	10 minutes	(P&G) Put out the pots and pans, get groceries
B: Make the bread	11 minutes	(P&G) Put out the pots and pans, get groceries
L: Make the salad	12 minutes	(P&G) Put out the pots and pans, get groceries
P: Put out pots and pans	3 minutes	(C&D) Clean counter, do dishes
C: Clean counter	2 minutes	(nothing)
D: Do dishes	33 minutes	(nothing)
G: Get groceries	35 minutes	(nothing)

Entrance quiz

How long does it take to get the pasta party ready by yourself?

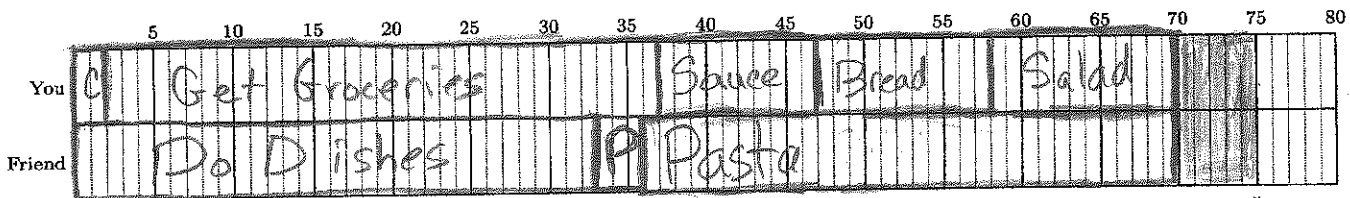
No way to speed it up. Just add up the times
 $34 + 10 + 11 + 12 + 3 + 2 + 33 + 35 = 140$ minutes for one person

Two heads are better than one

Eek! You only have 75 minutes! Suppose your friend had volunteered to help. Since you are in a rush, you agree each person would do whatever task could be done fastest, as soon as they can (of course, you can't make the sauce until you get the sauce ingredients from the grocery store, but whatever tasks could be done, will be done, shortest ones first; also each person works on a different task).

Describe how the 75 minutes are used:

Takes 70 minutes total. Fast as possible, $\frac{140}{2}$

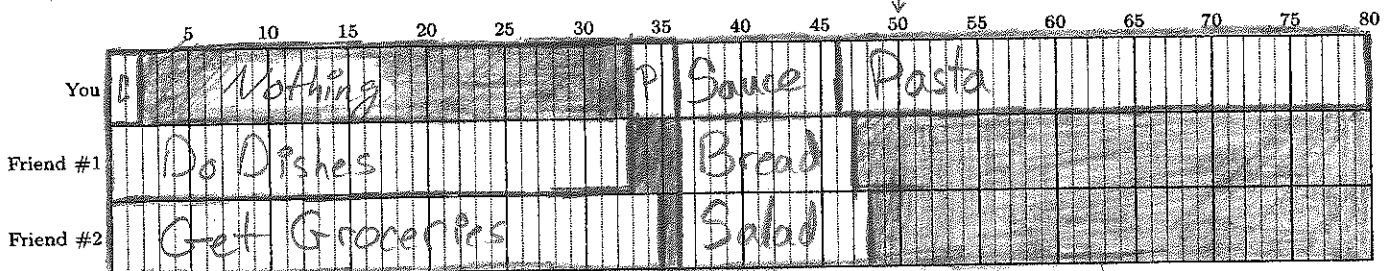


Three heads? Or too many cooks

Just as you are about to get started, a second friend shows up and says that everyone will be here in 50 minutes!! Since two people cut the time in half, with three people that should be no problem. Since you are in a rush, you agree all three of you will follow the same plan: whatever can be done fastest is what each person will work on.

Describe how the 50 minutes are used:

$140/3 \approx 46$, should be easy!



Takes 80 minutes!! Longer than with 2 people

Exit Quiz

Easy version: find a way for 3 people to do the tasks more quickly than the "three heads" version

Hard version: explain why it cannot be done faster than your way, even with four people!

EZ: Friend #2 - just chill. Me and friend #1 can do it in 70 minutes.

Hard: Not done until pasta done, ^{34 min}, can't start until pots put out, 3 min, can't start until dishes done, 33 min. Those essential tasks take $34 + 3 + 33 = 70$ minutes.

Scratch work:

Even 10 people would take 70 minutes with these rules.

