

Name _____

Date _____

House in a Hurry

This problem gives you the chance to

- *interpret a real-life problem*
- *organize information*
- *design and use charts or diagrams*
- *solve a problem*

You work for a construction company and receive this memo:

Rapido Builders Inc. Memo

From: Phil Hernandez
To: You
Re: We need this contract!
Date: Friday, Feb. 26

We have the chance to get a big contract to build a house on the corner of Alameda Avenue. The customers have already chosen the plans. They are in a hurry and will give this contract to the construction company that can complete the job in the **SHORTEST** amount of time. I think we stand a good chance, so let's go for it!

I have attached a list of the jobs to be done and the requirements for each job.

Prepare a schedule that clearly shows how we should organize the work.

Use some kind of diagram or chart to show when each job will be started and finished, and let me know the earliest possible date when we can finish the house.

Remember:

- We must begin on Monday morning, March 1. (Get some concrete for the foundations this weekend.)
- No work will be carried out on weekends. It is too expensive to pay overtime.
- We have a big enough work force to do more than one job at the same time—so use it!
- Make a clear record of your reasoning. I want to check it!

High School Package 2



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Write your reply to the memo. Use this calendar to help you plan.

March						
Sun	Mon	Tues	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

JOB A
Plastering the walls
 This takes: 2 working days.
Before starting:
 You must put in the plumbing and wiring (JOB I) and erect the roof (JOB B).

JOB B
Erecting the roof
 This takes: 6 working days.
Before starting:
 You must build the walls (JOB E).

JOB C
Pouring the concrete to make the foundation
 This takes: 2 working days.

JOB D
Landscaping the surroundings
 This takes: 8 working days.
Before starting:
 You must finish the messy building work in JOB B.

JOB E
Building the walls and putting in the windows and doors
 This takes: 10 working days.
Before starting:
 You must do JOB C and JOB G.

JOB F
Painting
 This takes: 3 working days.
Before starting:
 You must install the cupboards and other fitted furniture (JOB H).

JOB G
Ordering and waiting for timber, bricks, windows, and doors to be delivered
 This takes: 7 working days.

JOB H
Installing cupboards and other fitted furniture
 This takes: 2 working days.
Before starting: You must order and wait for the furniture (JOB I) and plaster the walls (JOB A).

JOB I
Putting in the plumbing and wiring
 This takes: 8 working days.
Before starting:
 You must build the walls (JOB E).

JOB J
Ordering and waiting for cupboards and other fitted furniture to be delivered
 This takes: 15 working days.



House in a Hurry

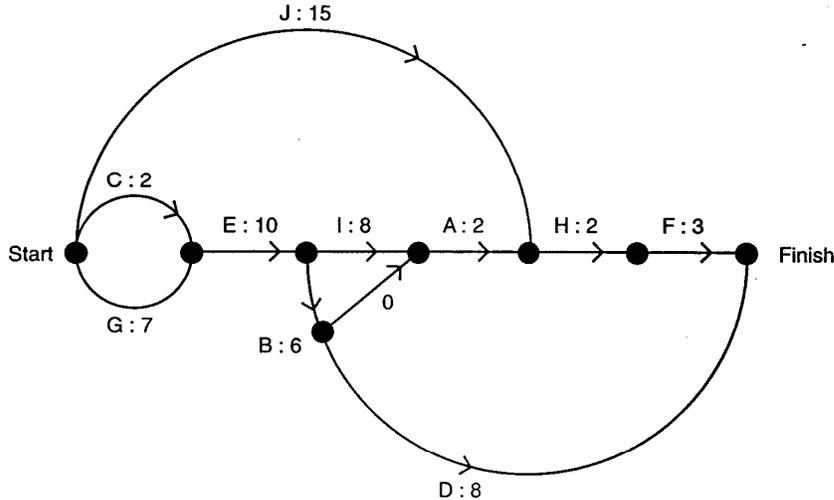
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A Sample Solution

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The required order of jobs is shown in the diagram below.



The path that shows necessary amounts of time, working from left to right, is G, E, I, A, H, F. This shows that the job must take at least 32 working days (= 7 + 10 + 8 + 2 + 2 + 3). As the job is begun on Monday, March 1st, it can be completed at the end of Tuesday, April 13th. The following time chart shows one of several possible correct solutions.

Mon 1	G	J	C	Tues 16	E	J	Wed 31	I	B
Tues 2	G	J	C	Wed 17	E	J	Thur 1	I	D
Wed 3	G	J		Thur 18	E	J	Fri 2	I	D
Thur 4	G	J		Fri 19	E	J	Sat 3		
Fri 5	G	J		Sat 20			Sun 4		
Sat 6				Sun 21			Mon 5	A	D
Sun 7				Mon 22	E		Tues 6	A	D
Mon 8	G	J		Tues 23	E		Wed 7	H	D
Tues 9	G	J		Wed 24	I	B	Thur 8	H	D
Wed 10	E	J		Thur 25	I	B	Fri 9	F	D
Thur 11	E	J		Fri 26	I	B	Sat 10		
Fri 12	E	J		Sat 27			Sun 11		
Sat 13				Sun 28			Mon 12	F	D
Sun 14				Mon 29	I	B	Tues 13	F	
Mon 15	E	J		Tues 30	I	B	Wed 14		

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