Example Context Elaboration: Critical Paths

Focus: Networks

Achievement objective M8-5

In a range of meaningful contexts, students will be engaged in thinking mathematically and statistically. They will solve problems and model situations that require them to:

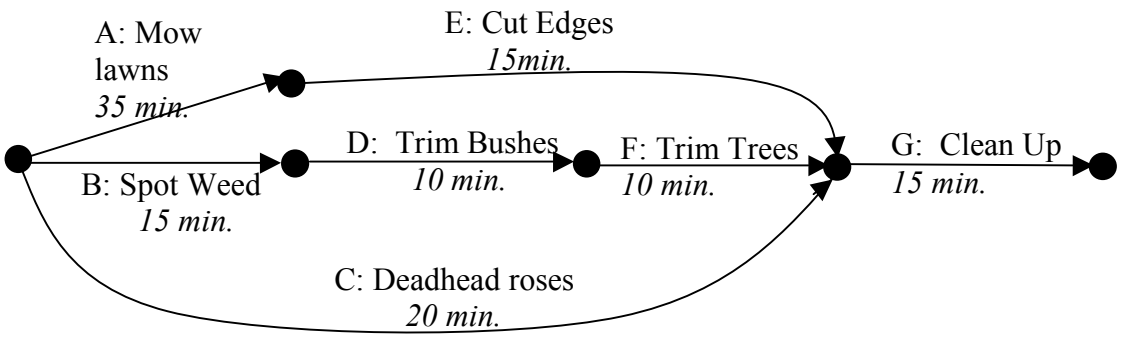
Develop network diagrams to find optimal solutions, including critical paths

Gardening tasks

A gardening firm has been asked to price a job for a new customer. The job involves completing the tasks shown in the table below. In order to analyse the time it will take to complete the job, the owner decides to create a network and analyse it.

Task	Time taken	Task(s) that must be completed first
A - Mow Lawns	35 minutes	-
B - Spot Weed Garden	15 minutes	-
C - Deadhead Roses	20 minutes	-
D - Trim Bushes	15 minutes	B
E - Cut Edges	15 minutes	A
F - Trim Trees	10 minutes	D
G - Clean Up	15 minutes	B, C, D, E, F

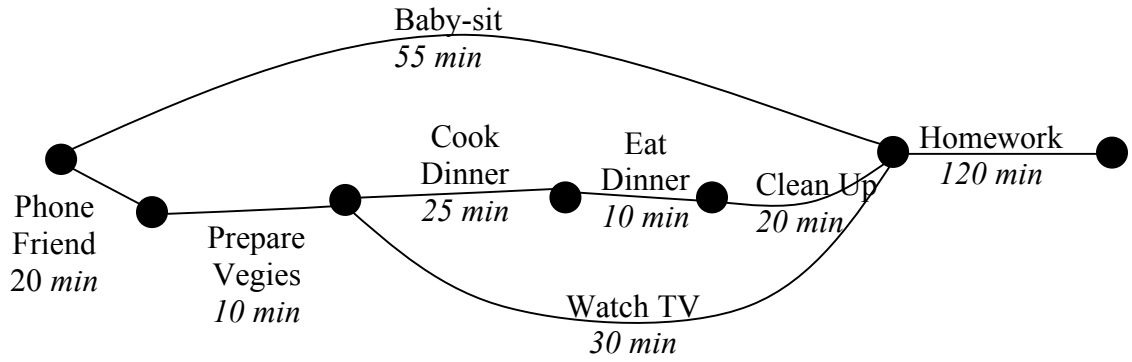
Use the table above to create a network that represents the tasks to be completed and then name the critical path and the time needed to complete this job.



Critical Path: A: Mow lawns → E: Cut edges → G: Clean up Time: 65 minutes

Time management

Mary has to help out at home every night because her parents can work late. She creates a network to help her make the most of her time.



Name the critical path and the time needed to complete this job.

Critical Path: Phone friend → Prepare vegies → Cook dinner → Eat dinner → Clean up → Homework Time: 205 minutes