

UNIT 1 *Mathematical Diagrams***Overhead Slides**

Overhead Slides

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OS 1.1

Mileage Chart 1

| | | | | | |
|-----|------------|-----|-----|----|--|
| | BARNSTAPLE | | | | |
| 100 | | | | | |
| 55 | 84 | | | | |
| 108 | 194 | 110 | | | |
| 67 | 125 | 44 | 77 | | |
| 50 | 51 | 34 | 144 | 75 | |
| | | | | | |

Use the table to answer the following questions:

1. How far is it from:
 - (a) Taunton to Exeter,
 - (b) Plymouth to Penzance,
 - (c) Exeter to Bristol,
 - (d) Taunton to Barnstaple?

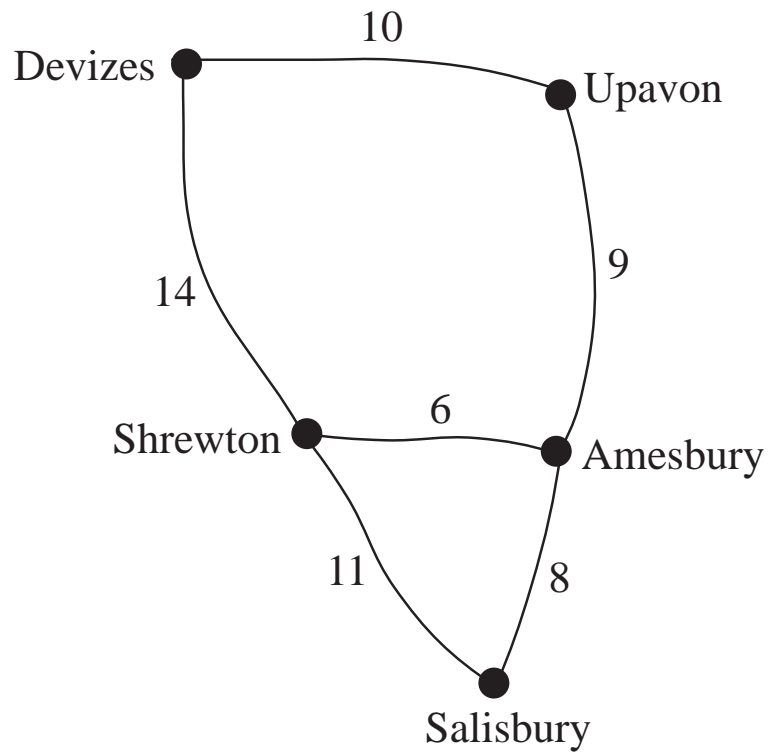
2. Jerry travels from Barnstaple to Exeter, then from Exeter to Plymouth, and finally from Plymouth back to Barnstaple.

How far does he travel altogether?

OS 1.2

Mileage Chart 2

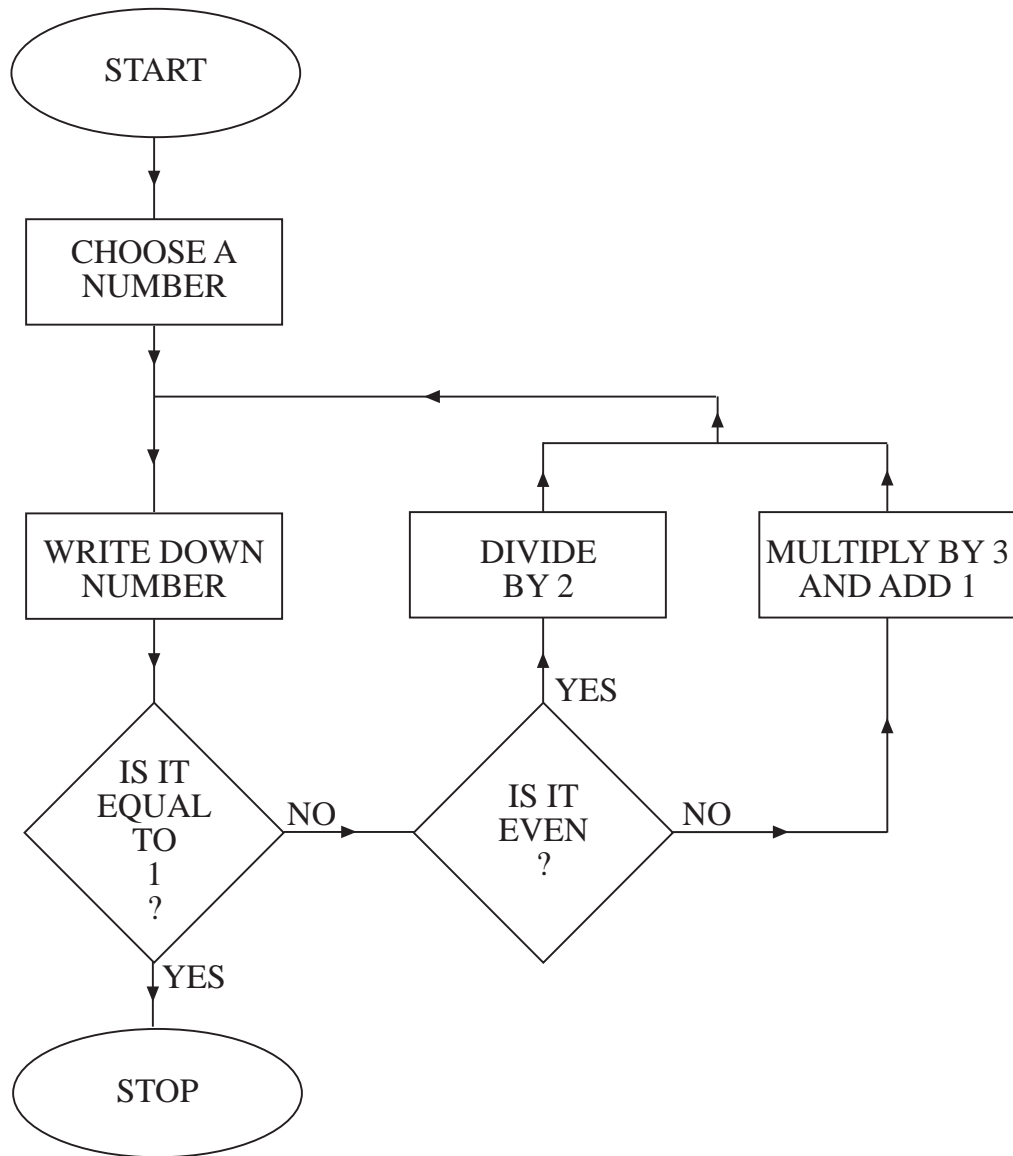
The network diagram shows the distances, in miles, between various towns.



Complete the following mileage chart to show the shortest distances between the towns.

| | | | | |
|--|----------|---------|--|--|
| | AMESBURY | DEVIZES | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

OS 1.3 *Flow Chart for Generating Number Sequences*



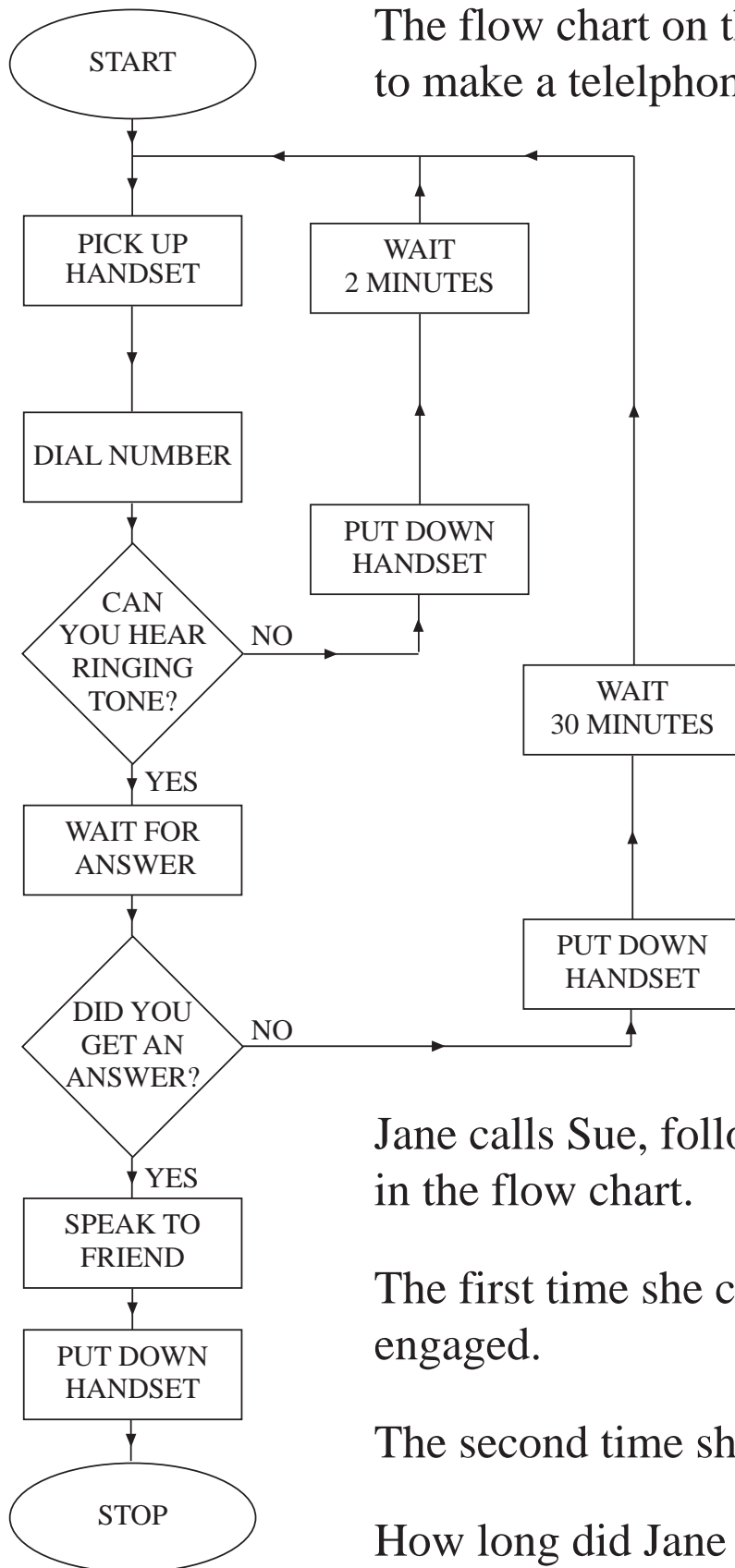
This flow chart generates a number sequence when you choose a number.

1. What happens when you choose the number:
 - (a) 4
 - (b) 3
 - (c) 40?

2. Which of the starting numbers 1, 2, . . . , 9 gives the longest sequence of numbers?

OS 1.4

Flow Chart for Making a Telephone Call



The flow chart on the left indicates how to make a telephone call.

Jane calls Sue, following the instructions in the flow chart.

The first time she calls, Sue's phone is engaged.

The second time she calls, Sue answers.

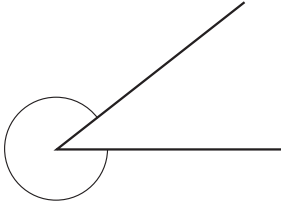
How long did Jane spend waiting?

OS 1.5

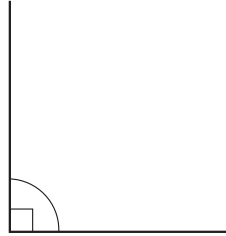
Classification of Angles

Where would each of these angles come out of the flow chart:

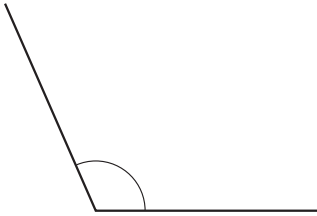
1.



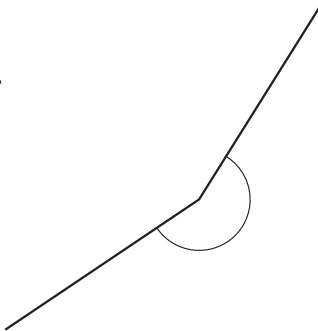
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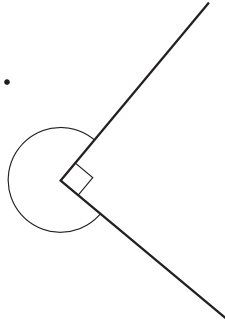
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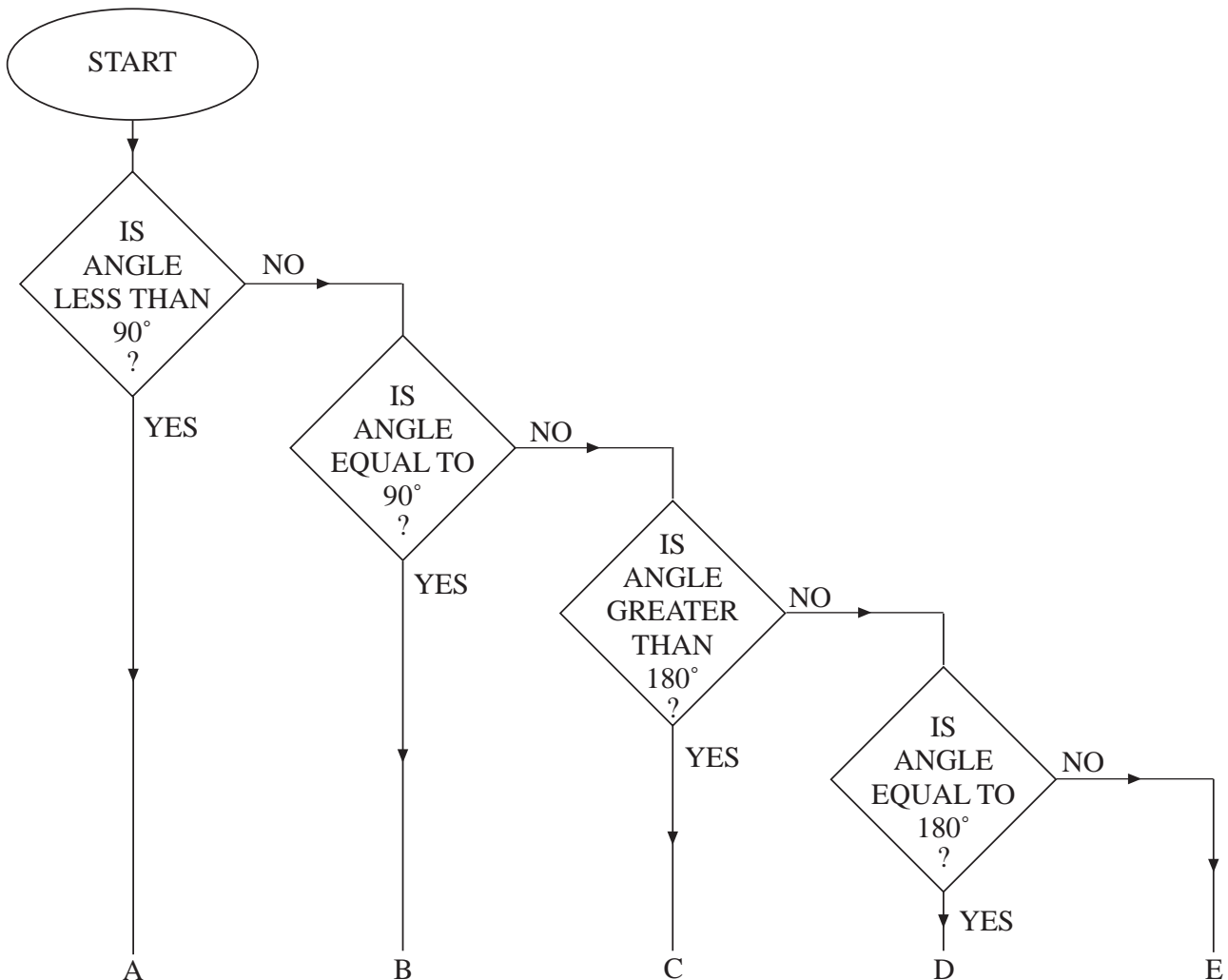
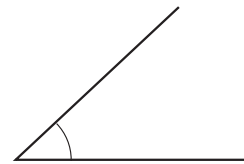
4.



5.



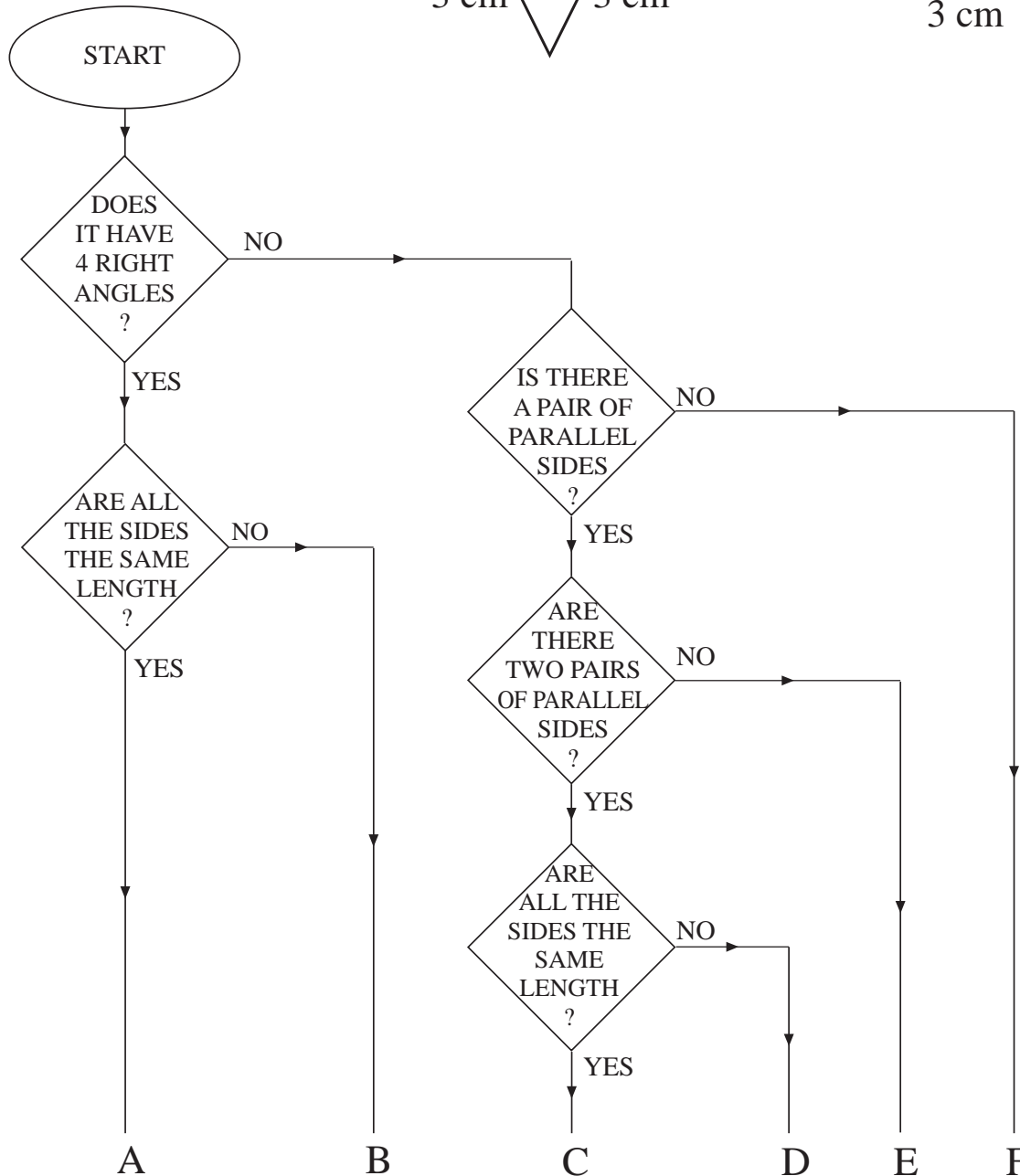
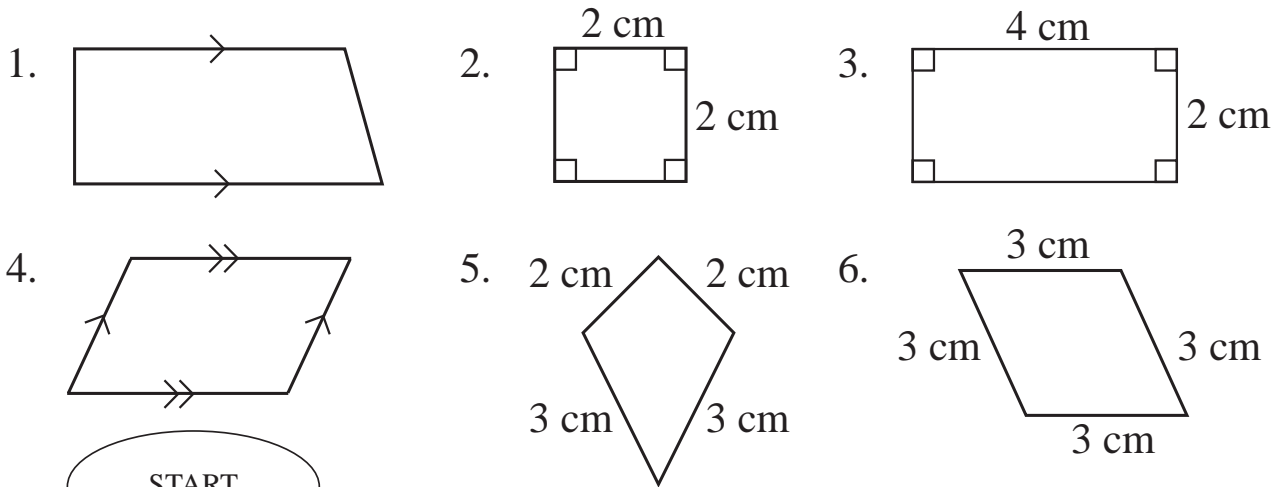
6.



OS 1.6

Classification of Quadrilaterals

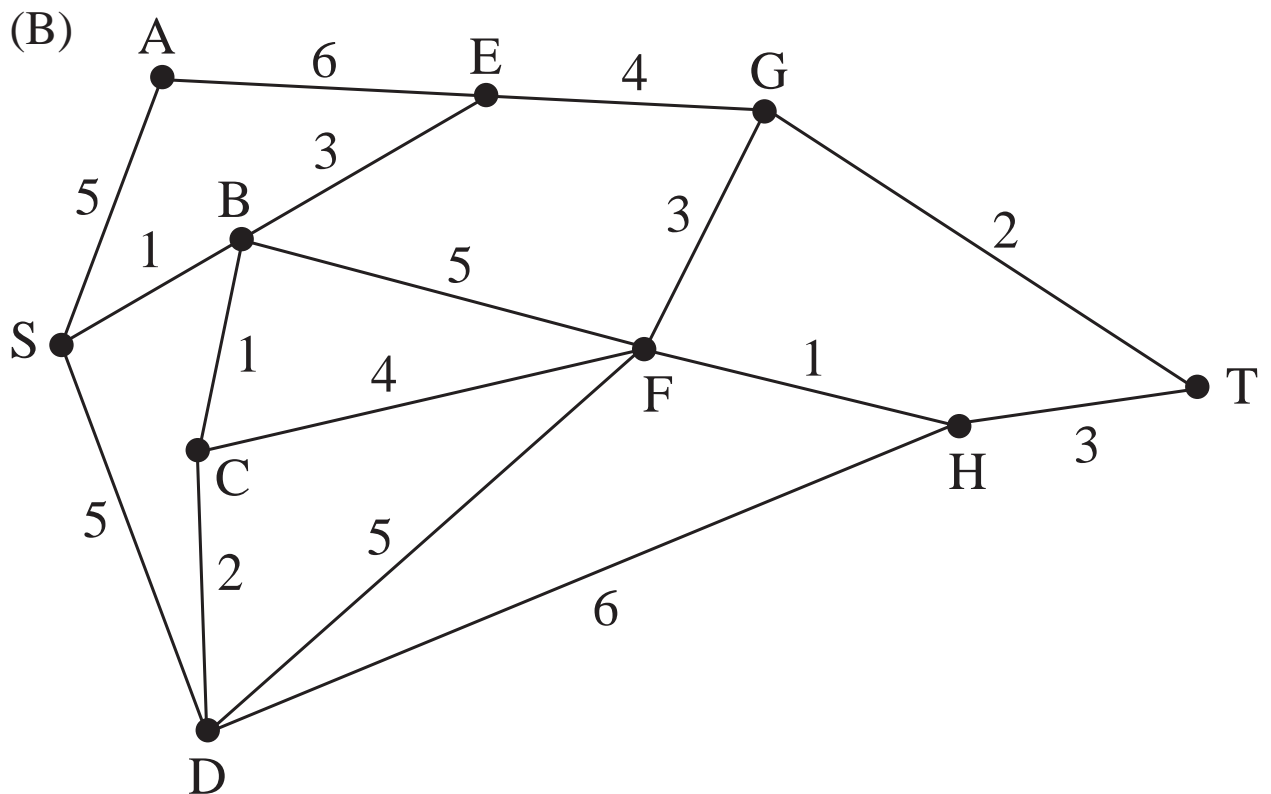
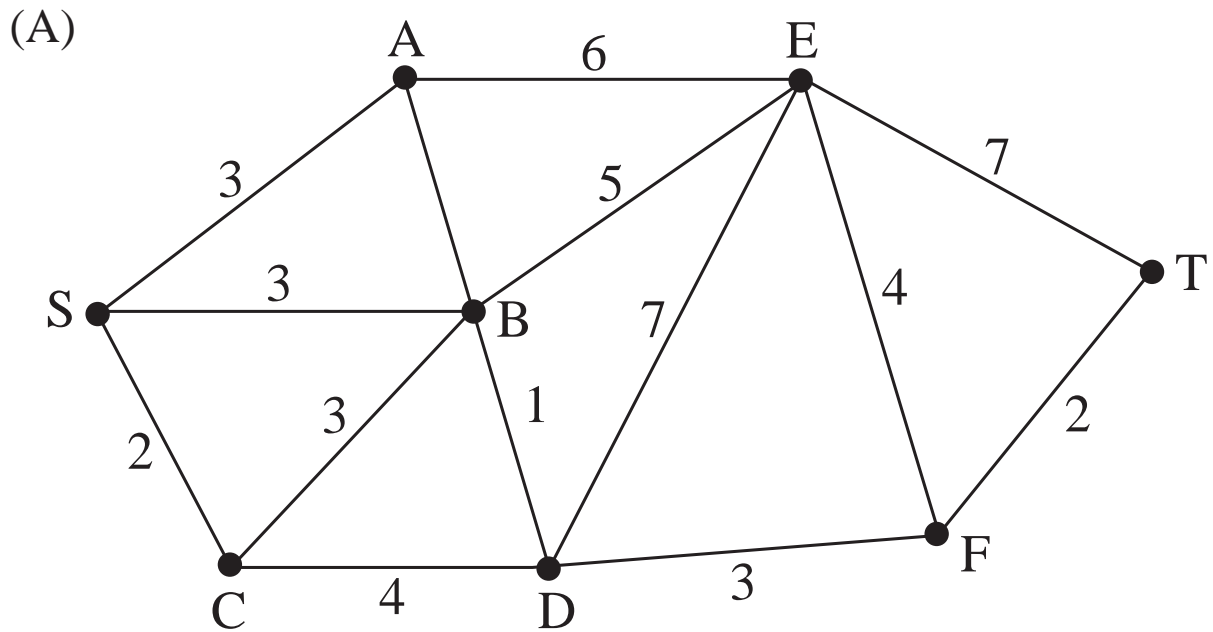
Where would each of these quadrilaterals come out of the flow chart:



OS 1.7

Shortest Route Through Networks

Find the shortest route from S to T on each of the following networks:



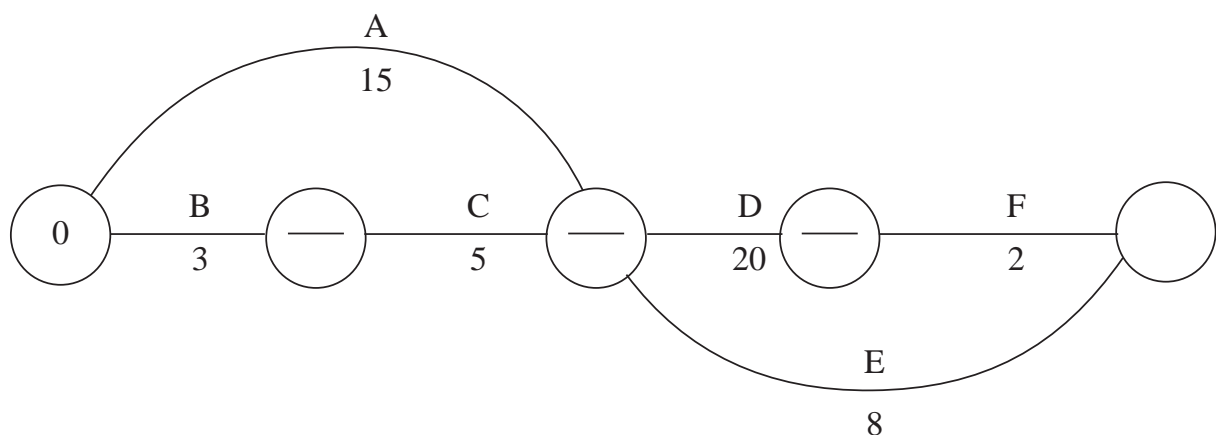
OS 1.8

Critical Path Analysis 1

Veronica is going to make a cake. She has six tasks to do, which are listed below:

| <i>Activity</i> | <i>Time needed in minutes</i> | <i>Preceded by</i> |
|------------------------------------|-----------------------------------|--------------------|
| A Warm oven | 15 | |
| B Weigh ingredients | 3 | |
| C Mix ingredients | 5 | Weigh ingredients |
| D Bake cake | 20 | Mix ingredients |
| E Wash up mixing bowl and utensils | 8 | Mix ingredients |
| F Wash up cake tin | 2 | Bake cake |

The activity network is shown below:



1. Complete the activity network.
2. Find the critical path.
3. What are the float times for each of the activities?

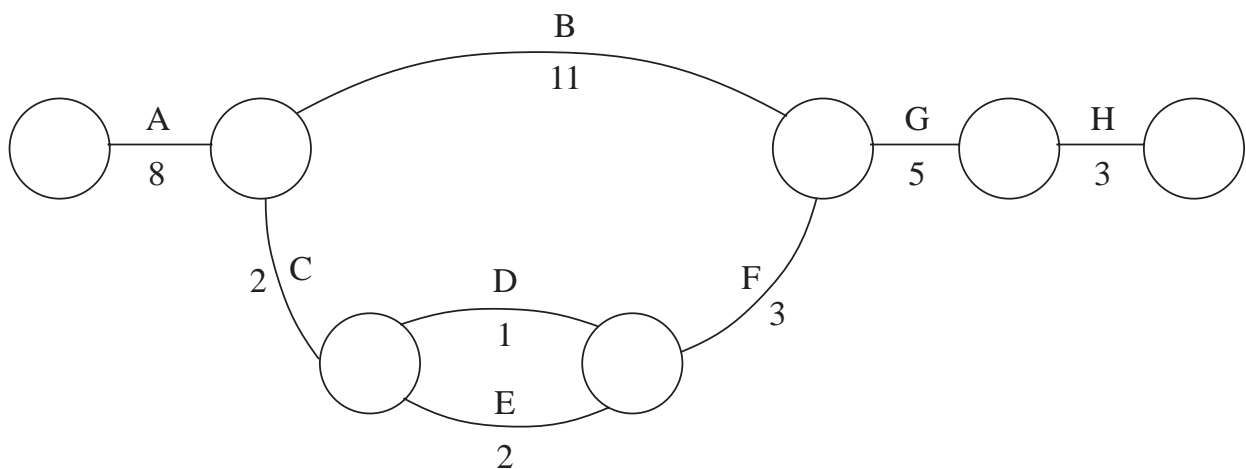
OS 1.9

Critical Path Analysis 2

The table lists the tasks needed to completely refurbish a kitchen; the times are given in days.

| <i>Task</i> | <i>Time needed</i> | <i>Preceded by</i> |
|------------------------|--------------------|--------------------|
| A Design kitchen | 8 | |
| B Make kitchen units | 11 | A |
| C Remove old units | 2 | A |
| D Fit new power points | 1 | C |
| E Fit new plumbing | 2 | C |
| F Paint and decorate | 3 | D, E |
| G Fit new units | 5 | B, F |
| H Fix wall tiles | 3 | G |

The activity network is shown below:



Find the critical path and the shortest completion time.