In Test problems 1-4, we will be calculating the Forward and Backward Pass as well as Total Float.

Test Problem #1: Manually calculating a Forward Pass.

Provided assumptions:
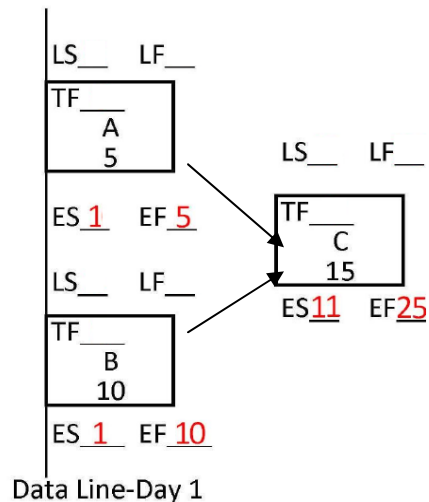Per Primavera, your earliest start will be 1
Each Node is identified with an Activity ID (A-C)
Each activity has a duration listed under the Activity ID
The Data Date (Data Line is shown on left side) is Day 1
Node C is a successor to Nodes A & B

Using the above listed assumptions, calculate the ES & EF for each activity and fill in the blanks.

Test Problem #2: Manually calculating a Backward Pass and Total Float.
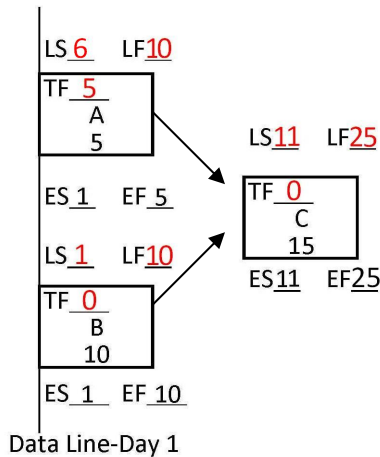
Provided assumptions:
Use all assumptions and calculations from Problem 1
The EF on Activity C is used to start the Backward Pass
Your latest finish will be the same as your earliest finish
Using the above listed assumptions, calculate the LS & LF as well as the Total Float for each activity.

```
LS 6    LF 10
TF 5
     A
     5

ES 1    EF 5           LS 11    LF 25

                       TF 0
LS 1    LF 10               C
                           15
TF 0                   ES 11    EF 25
     B
     10

ES 1    EF 10
```

Data Line-Day 1

Test Problem #3: Manually calculating a Forward and Backward Pass along with Total Float.

Provided assumptions:
Per Primavera, your earliest start will be 1
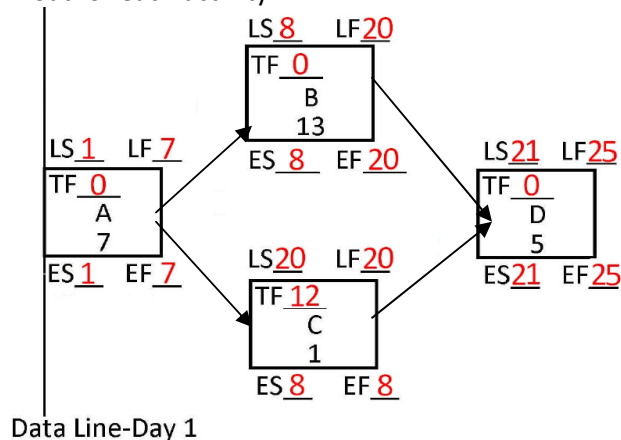Each Node is identified with an Activity ID (A-D)
Each activity has a duration listed under the Activity ID
The Data Date (Data Line is shown on left side) is Day 1
Node D is a successor to Nodes B & C, Nodes B & C are successors to Node A.
Your latest finish will be the same as your earliest finish
Using the above listed assumptions, complete the Forward and Backward Pass and calculate the Total Float for each activity.

```
                LS 8    LF 20
                TF 0
                     B
                    13
LS 1    LF 7     ES 8    EF 20      LS 21    LF 25
TF 0                               TF 0
     A                                  D
     7                                  5
ES 1    EF 7     LS 20   LF 20      ES 21    EF 25
                TF 12
                     C
                     1
                ES 8    EF 8
```

Data Line-Day 1

Circle the correct Critical Path for Problem #3:
  a) A, B, C
  b) A, C, D, C
  c) A, B, C, D
  d) A, B, D
  e) A, C, B, D

Test Problem #4: Manually calculating a Forward and Backward Pass along with Total Float.

Provided assumptions:
Per Primavera, your earliest start will be 1
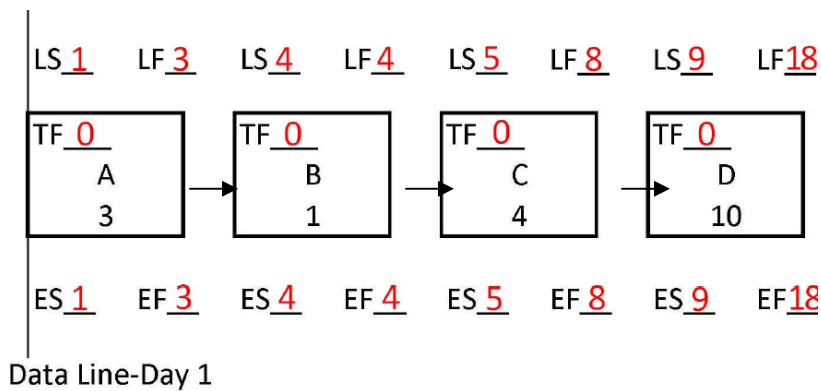Each Node is identified with an Activity ID (A-D)
Each activity has a duration listed under the Activity ID
The Data Date (Data Line is shown on left side) is Day 1
Node B is a successor to Node A, Node C is a successor to Node B and Node D is a successor to Node C.
Your latest finish will be the same as your earliest finish
Using the above listed assumptions, complete the Forward and Backward Pass and calculate the Total Float for each activity.

LS 1   LF 3   LS 4   LF 4   LS 5   LF 8   LS 9   LF 18

TF 0	TF 0	TF 0	TF 0
A	B	C	D
3	1	4	10

ES 1   EF 3   ES 4   EF 4   ES 5   EF 8   ES 9   EF 18

Data Line-Day 1

In Test Problems #5-11   we will be identifying Activity Relationships. Looking at the link (arrow) and the data line, identify the relationship in each problem.

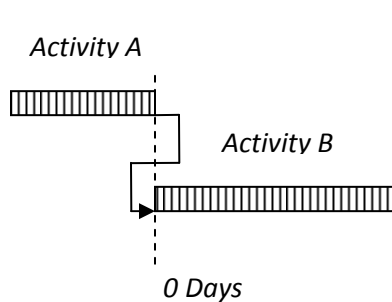The Four Relationship Types are:
Finish-To-Start (FS)
Finish-To-Finish (FF)
Start-To-Start (SS)
Start-To-Finish SF)

To compute the following answers for relationship and lag, the two questions you should be asking yourself are:
1. Where does the arrow begin and end?
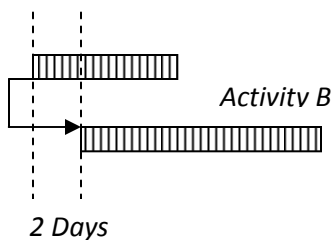2. How many days are shown between the activities?

Test Problem #5

Activity A

Activity B

0 Days

   FS   = 0
Relationship   Lag

Test Problem #6

Activity A

Activity B

$$\frac{SS}{Relationship} = \frac{2}{Lag}$$
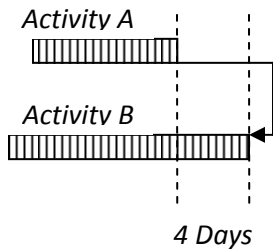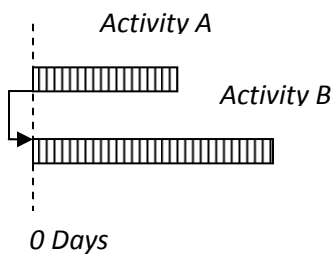
2 Days

Test Problem #7

Activity A

Activity B

$$\frac{FF}{Relationship} = \frac{4}{Lag}$$

4 Days

Test Problem #8

Activity A

Activity B

$$\frac{SS}{Relationship} = \frac{0}{Lag}$$

0 Days

Test Problem #9

Activity A

Activity B

$$\frac{FS}{Relationship} = \frac{3}{Lag}$$

3 Days

Test Problem #10

Activity A

Activity B

5 Days
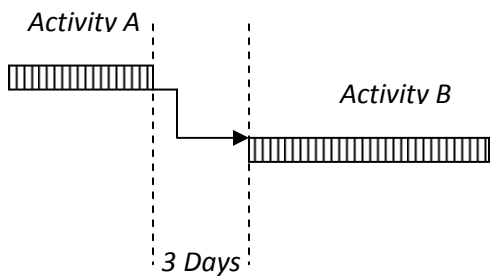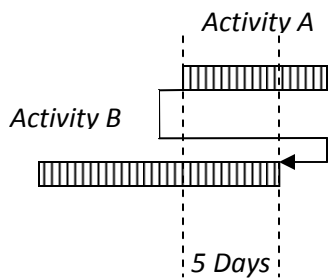
$$\frac{SF}{Relationship} = \frac{5}{Lag}$$

Test Problem #11

Activity A

Activity B

0 Days
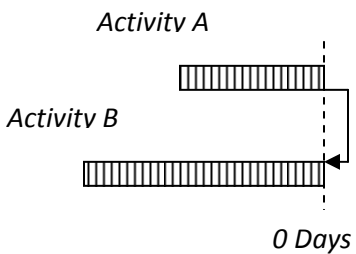
$$\frac{FF}{Relationship} = \frac{0}{Lag}$$

End of Level 4 Test Key Part 1.