York University

Dept. of Computer Science and Engineering

EECS2021
Computer Organization
Quiz 3 – 25 minutes
Dec. 3 2014

Question 1 – 10 points (5+5)

Consider the following code executing on a 5- stage MIPS machine like the one we studies in the course

```
add  $1, $2, $3
or   $2, $4, $5
sub  $5, $1, $6
sw   $5, 32($7)
```

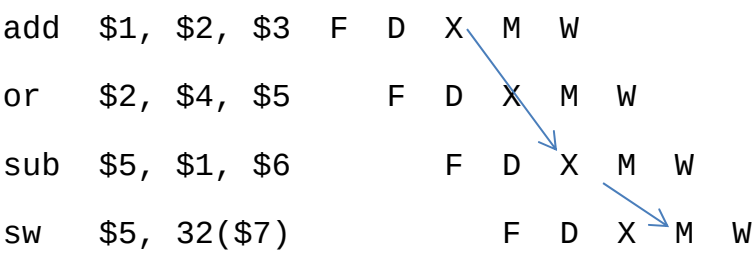
How many pipeline cycles does it take to complete the code assuming no forwarding and read/write registers are done in the same cycle (write in the first half, and read in the second half).

The code is copied below for your convenience

```
add  $1, $2, $3   F  D  X  M  W
or   $2, $4, $5      F  D  X  M  W
sub  $5, $1, $6         F  -  D  X  M  W
sw   $5, 32($7)            F  -  -  -  D  X  M  W
```

Total = 11 cycles

What if we allowed forwarding, how many cycles? Show forwarding done in this case



8 Cycles