Lowest Common Multiple Answers

1) a) 8, 16, **24**, 32, 40, 48, 56, 64, 72 and 80.

b) 6, 12, 18, **24**, 30, 36, 42, 48, 54 and 60.

c) The smallest number to appear in both lists is 24.

2) You can either make a list like in Q1 or just do them in your head if you can.
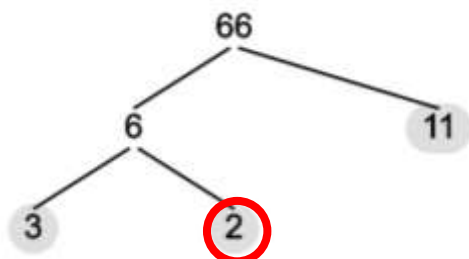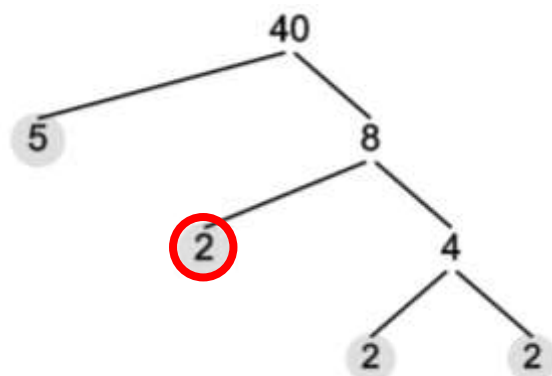   a) 15
   b) 18
   c) 40
   d) 36
   e) 60
   f) 66

3) a)

b)

c) We compare the prime factors of each. All they have in common is one 2. So we add 2 to our final list.

Then we add what is left to our final list. In the 66 tree we have a 3 and an 11 left which we add to the final list. In the 40 tree we have two 2s and a 5 which we add to the final list.

Now review our final list: 2, 3, 11, 2, 2 and 5.

Finally multiply all the numbers in our final list together: 2 x 3 x 11 x 2 x 2 x 5 = 1320

So the LCM of 66 and 40 is 1320.

4) Repeat the above method for each:
   a) Prime factors of 28 are 2, 2 and 8.
   Prime factors of 30 are 2, 3 and 5.
   LCM of 28 and 30 is 2 x 2 x 8 x 3 x 5 = 480.

   b) Prime factors of 16 are 2, 2, 2 and 2.
   Prime factors of 24 are 2, 2, 2 and 3.
   LCM of 16 and 24 = 2 x 2 x 2 x 2 x 3 = 48

   c) 20 = 5 x 2 x 2
   25 = 5 x 5
   LCM = 5 x 2 x 2 x 5 = 100

   d) 60 = 5 x 2 x 2 x 3
   50 = 5 x 2 x 5
   LCM = 5 x 2 x 2 x 3 x 5 = 300

e) $12 = 2 \times 3 \times 2$

$18 = 2 \times 3 \times 3$

$LCM = 2 \times 3 \times 2 \times 3$

f) $21 = 7 \times 3$

$35 = 7 \times 5$

$LCM = 7 \times 3 \times 5$

5) This is still just a LCM question. We need to find the LCM of 8 and 15.

$8 = 2 \times 2 \times 2$

$15 = 3 \times 5$

Since they have nothing in common LCM = 8 x 15 = 120

They flash together 120 seconds later.

6) This is still a LCM question. So split their times into their prime factors.

Vic: $40 = 2 \times 5 \times 2 \times 2$

Paul: $30 = 2 \times 5 \times 3$

Mark: $50 = 2 \times 5 \times 5$

a) We need to find the LCM of 40 and 30.

$LCM = 2 \times 5 \times 2 \times 2 \times 3 = 120$

Paul overtakes Vic after 120 seconds. We can see that after 120 seconds Paul has done 4 laps whereas Vic has only done 3 – so Paul overtakes Vic.

b) We need to find the LC of 40 and 50.

LCM = 2 x 5 x 2 x 2 x 5 = 200

Vic overtakes Mark after 200 seconds. We can see that after 200 seconds Vic has completed 5 laps whereas Mark has only completed 4 and so Vic overtakes Mark.