1 Here is a list of five numbers.

98^{53} 98^{64} 98^{73} 98^{88} 98^{91}

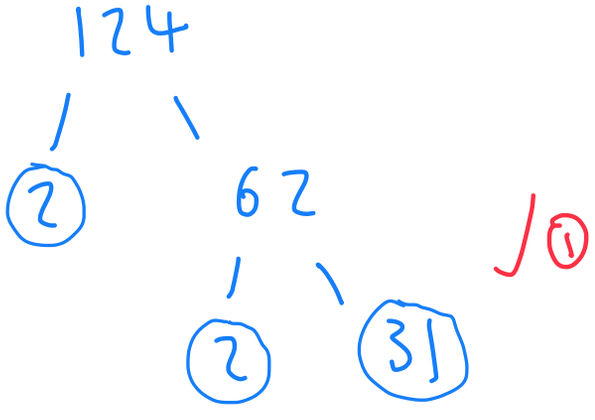
Find the lowest common multiple of these five numbers.

98^{91} (1)

.....

(Total for Question 1 is 1 mark)

2 Write 124 as a product of its prime factors.



✓ (1)

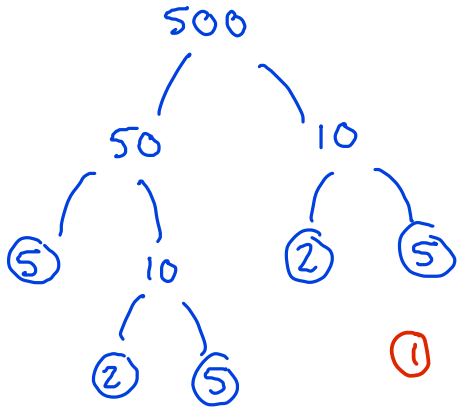
$2^2 \times 31$ ✓ (1)

$2^2 \times 31$

(Total for Question 2 is 2 marks)

You must write down all the stages in your working.

3 Write 500 as a product of powers of its prime factors.



$500 = 2 \times 2 \times 5 \times 5 \times 5$ (1)

$= 2^2 \times 5^3$ (1)

$2^2 \times 5^3$

(Total for Question 3 is 3 marks)

4 Two numbers m and n are such that
m is a multiple of 5
n is an even number
the highest common factor (HCF) of m and n is 7

Write down a possible value for m and a possible value for n.

HCF of m and n is 7, so both m and n have a factor 7

m is a multiple of 5 so let $m = 7 \times 5$

n is even so let $n = 7 \times 2$

$\therefore m = 35$ (1)

$n = 14$ (1)

$m =$ 35

$n =$ 14

(Total for Question 4 is 2 marks)

5 Write 60 as a product of its prime factors.

1 x 60

2 x 30 → 2 x 3 x 2 x 5

3 x 20 → 3 x 2 x 2 x 5

4 x 15

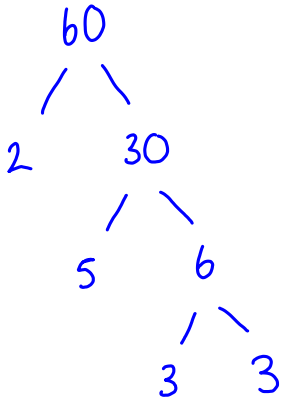
5 x 12 → 5 x 2 x 2 x 3

6 x 10

(1)

answers are the same either choice

using the tree method:



2 x 2 x 3 x 5 (1)

(Total for Question 5 is 2 marks)

6 A and B are numbers such that

$$A = 2^2 \times 3^4 \times 7$$
$$B = 3^2 \times 7^2$$

(a) Find the highest common factor (HCF) of A and B.

List all the factors of A and B :

A : 2 x 2 x (3) x (3) x 3 x 3 x (7)

B : (3) x (3) x (7) x 7

Circle all common factors of A and B.

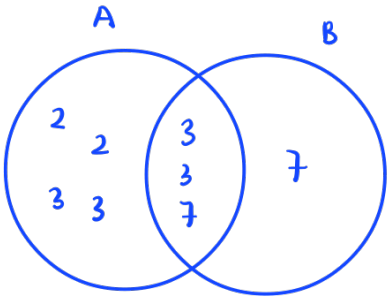
Multiply all the common factors to get HCF :

3 x 3 x 7 = 63

63 (1)

(1)

(b) Find the lowest common multiple (LCM) of A and B.



LCM = 2 x 2 x 3 x 3 x 3 x 3 x 7 x 7

= $2^2 \times 3^4 \times 7^2$ (1)

= 15 876 (1)

15 876

(2)

(Total for Question 6 is 3 marks)