

2 Factors:

To find factors of a number we can write a **factor list** or we can make a **factor tree**.

2.1 Factor Lists

To make a factor list for the number 36, we start with:

1, 36 *(because $1 \times 36 = 36$)*
2, 18
3, 12
4, 9
6, 6 *(we don't need to go further because they will repeat)*

2.1.1 Write factor lists for:

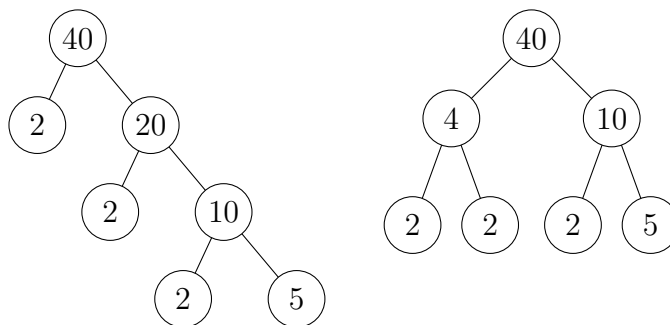
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|--------|---------|---------|----------|
| i) 24 | iii) 48 | v) 96 | vii) 210 |
| ii) 30 | iv) 84 | vi) 221 | |

2.2 Factor Trees and the Product of Prime Factors

To make a factor tree we start with a number at the top and then find any two factors of the number and put these as branches. We then find factors of each of those numbers.

If the number is prime we cannot add a branch.

This is an example of a factor tree for the number 40:



Both of these trees are correct because we get the same prime numbers at the end.

From the tree we can find the prime numbers (at the ends of the branches) that multiply to make 40.

$$2 \times 2 \times 2 \times 5 = 40$$

$$\text{or } 2^3 \times 5 = 40$$

(this is writing 40 as a product of prime factors).

2.2.1 Draw Factor Trees for the following numbers and write the numbers as a product of prime factors:

- | | | | |
|--------|---------|---------|----------|
| i) 24 | iii) 48 | v) 96 | vii) 210 |
| ii) 30 | iv) 84 | vi) 221 | |