

Products of Prime Factors

Starter

1. (Review of last lesson)

Add together $\frac{8}{15}$ and $1.14\dot{6}$. Give your answer as a mixed number in its simplest form.

Working: $1.14\dot{6} = 1.14666\dots$ needs to be expressed as a fraction first.

Let $x = 1.14666\dots$

Multiply by 100:

$$100x = 114.666\dots$$

Multiply $x = 1.14666\dots$ by 1000:

$$1000x = 1146.666\dots$$

Subtracting: $1000x - 100x = 1146.666\dots - 114.666\dots$

$$900x = 1032$$

$$x = \frac{1032}{900} = \frac{86}{75}$$

$$\frac{8}{15} + \frac{86}{75} = \frac{40}{75} + \frac{86}{75} = \frac{126}{75} = 1\frac{51}{75} = 1\frac{17}{25}$$

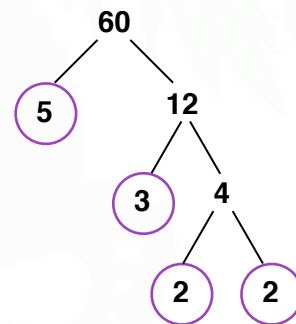
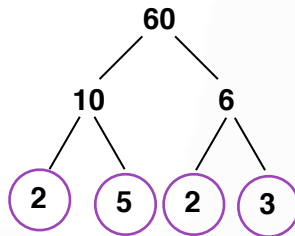
2. Write down the prime numbers below 30.

Working: A prime number is a positive integer bigger than 1 which has only two factors — 1 and itself.

The prime numbers below 30 are 2, 3, 5, 7, 11, 13, 17, 19, 23, 29.

3. Use a factor tree, or otherwise, to express 60 as a product of its prime factors.

Working: Here are two possibilities for the factor tree but there are other ways. Remember to circle the prime factors as they appear.



So $60 = 2 \times 2 \times 3 \times 5 = 2^2 \times 3 \times 5$

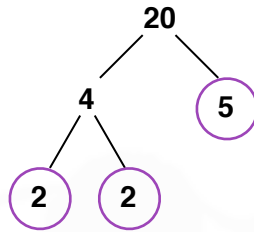
E.g. 1 By drawing a factor tree, or otherwise, express these numbers as the product of prime numbers. Give your final answer in index notation.

(a) 20

(b) 48

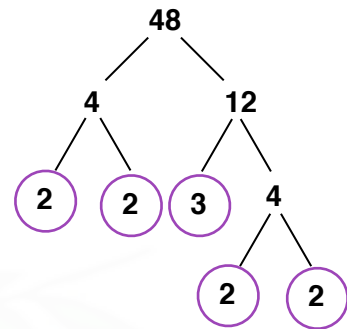
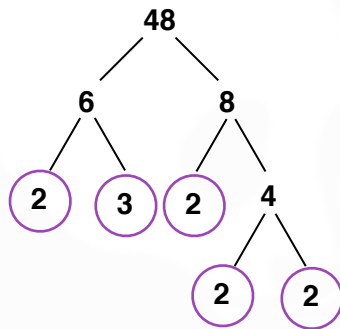
(c) 630

Working: (a)



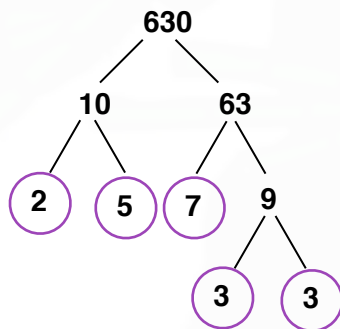
$$20 = 2 \times 2 \times 5 = 2^2 \times 5$$

(b)



$$48 = 2 \times 3 \times 2 \times 2 \times 2 = 2^4 \times 3$$

(c)



$$630 = 2 \times 5 \times 7 \times 3 \times 3 = 2 \times 3^2 \times 5 \times 7$$

Video: [Product of prime factors](#)

[Solutions to Starter and E.g.s](#)

Exercise

9-1 class textbook:

A*-G class textbook:

9-1 homework book:

A*-G homework book:

p118 M5.1 Qu 1-3

p118 M5.2 Qu 1-4

p44 M5.1/M5.2 Qu 1-3

p32 M5.2 Qu 2-3