PRODUCT OF PRIME FACTORS

Answer all of these questions. Remember to show your working out in all questions.

MAIN QUESTIONS

1.

Express 12 as a product of its prime factors

$2^2 \times 3$

2.

Express 18 as a product of its prime factors

2×3^2

3.

Express 24 as a product of its prime factors

$2^3 \times 3$

4.

Express 30 as a product of its prime factors

$2 \times 3 \times 5$

5.

Express 36 as a product of its prime factors

$2^2 \times 3^2$

6.

Express 42 as a product of its prime factors

$2 \times 3 \times 7$

7.

Express 50 as a product of its prime factors

2×5^2

8.

Express 56 as a product of its prime factors

$2^3 \times 7$

9.

Express 60 as a product of its prime factors

$2^2 \times 3 \times 5$

10.

Express 72 as a product of its prime factors

$2^3 \times 3^2$

11.

Express 84 as a product of its prime factors

$2^2 \times 3 \times 7$

12.

Express 90 as a product of its prime factors

$2 \times 3^2 \times 5$

13.

Express 96 as a product of its prime factors

$2^5 \times 3$

14.

Express 108 as a product of its prime factors

$2^2 \times 3^3$

15.

Express 120 as a product of its prime factors

$2^3 \times 3 \times 5$

16.

Express 132 as a product of its prime factors

$2^2 \times 3 \times 11$

17.

Express 144 as a product of its prime factors

$2^4 \times 3^2$

18.

Express 150 as a product of its prime factors

$2 \times 3 \times 5^2$

19.

Express 168 as a product of its prime factors

$2^3 \times 3 \times 7$

20.

Express 180 as a product of its prime factors

$2^2 \times 3^2 \times 5$

21.

Express 200 as a product of its prime factors

$2^3 \times 5^2$

22.

Express 216 as a product of its prime factors

$2^3 \times 3^3$

23.

Express 240 as a product of its prime factors

$2^4 \times 3 \times 5$

24.

Express 252 as a product of its prime factors

$2^2 \times 3^2 \times 7$

25.

Express 270 as a product of its prime factors

$2 \times 3^3 \times 5$

26.

Express 288 as a product of its prime factors

$2^5 \times 3^2$

27.

Express 300 as a product of its prime factors

$2^2 \times 3 \times 5^2$

28.

Express 324 as a product of its prime factors

$2^2 \times 3^4$

29.

Express 360 as a product of its prime factors

$2^3 \times 3^2 \times 5$

30.

Express 420 as a product of its prime factors

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

MASTER QUESTIONS

M1.

A rectangular garden measures 24 metres by 36 metres. Express the area in square metres as a product of prime factors

$2^3 \times 3^2$

M2.

A factory produces boxes that can hold 60 items each. Express the number of items in 12 boxes as a product of prime factors

$2^4 \times 3^2 \times 5$

M3.

A school has 180 students and 12 classrooms. Express the maximum number of students per classroom if divided equally as a product of prime factors

3×5

M4.

A recipe requires 250g of flour and makes 10 portions. Express the flour per portion in grams as a product of prime factors

5^2

M5.

A cube has a volume of 216 cubic centimetres. Express the length of one side in centimetres as a product of prime factors

2×3

M6.

A bus route takes 84 minutes to complete one circuit. Express the time for 6 circuits in minutes as a product of prime factors

$2^2 \times 3^2 \times 7$

M7.

A bookshelf can hold 48 books per shelf and has 5 shelves. Express the total capacity as a product of prime factors

$2^5 \times 3 \times 5$

M8.

A swimming pool is filled at a rate of 120 litres per minute. Express the volume after 15 minutes in litres as a product of prime factors

$2^3 \times 3^2 \times 5^2$

M9.

A school year has 195 days divided into 3 equal terms. Express the number of days per term as a product of prime factors

3×13

M10.

A rectangular field has an area of 525 square metres and length 35 metres. Express the width in metres as a product of prime factors

3×5