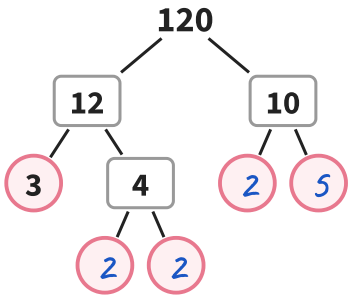
Prime factor decomposition

ANSWERS

1

Write 120 as a product of its prime factors. Give your answer in index form.

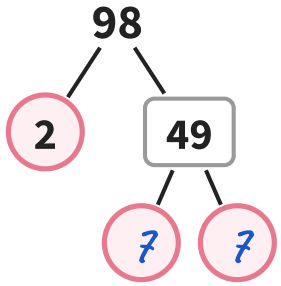


120 = $2 \times 2 \times 2 \times 3 \times 5$

Index form $2^3 \times 3 \times 5$

2

Write 98 as a product of its prime factors. Give your answer in index form.

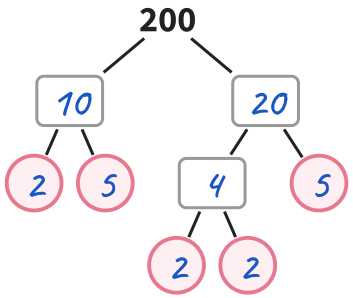


98 = $2 \times 7 \times 7$

Index form 2×7^2

3

Write 200 as a product of its prime factors. Give your answer in index form.

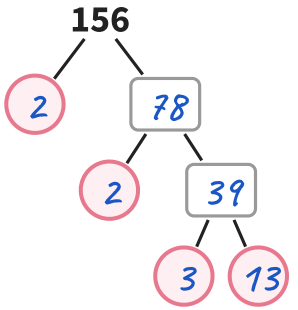


200 = $2 \times 2 \times 2 \times 5 \times 5$

Index form $2^3 \times 5^2$

4

Write 156 as a product of its prime factors. Give your answer in index form.

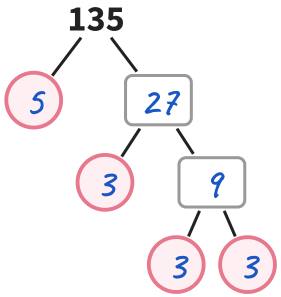


156 = $2 \times 2 \times 3 \times 13$

Index form $2^2 \times 3 \times 13$

5

Write 135 as a product of its prime factors. Give your answer in index form.



Answer $3^3 \times 5$

6

A number written as a product of its prime factors is $2^4 \times 3 \times 5$.
What is the number?

$2^4 = 16$, $3 \times 5 = 15$

$16 \times 15 = 240$

Answer 240

7

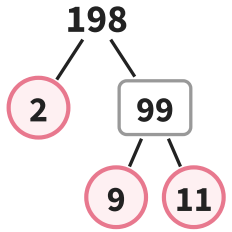
Ben starts a factor tree for 96 with 8×12.
Amira starts hers with 2×48.
Will they get the same answer?
Write 96 in index form.

Yes, any first split gives the same primes

96 = $2^5 \times 3$

8

Leo draws this tree and writes $198 = 2 \times 9 \times 11$. What has he done wrong? Write 198 in index form.



9 is not prime: $9 = 3 \times 3$

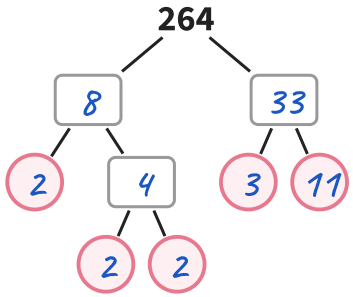
198 = $2 \times 3^2 \times 11$

Prime factor decomposition *further practice*

ANSWERS

9

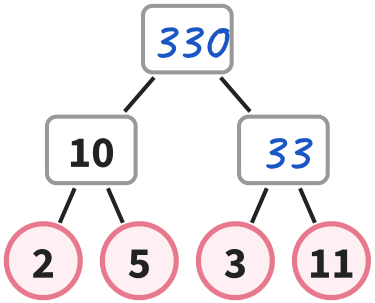
Write 264 as a product of its prime factors. Give your answer in index form.



Answer $2^3 \times 3 \times 11$

10

Find the missing numbers in this factor tree.



Answer 33 and 330

11

Write 175 and 245 as products of their prime factors. Which primes are in both?

175 = $5^2 \times 7$

245 = 5×7^2

In both 5 and 7

12

A theatre has $2^4 \times 3 \times 7$ seats. How many seats is that?

$2^4 = 16$, $3 \times 7 = 21$

$16 \times 21 = 336$

Answer 336 seats

13

Find the missing prime.

$2^2 \times$ 5 $\times 11 = 220$

$2^2 \times 11 = 44$

$220 \div 44 = 5$

Answer 5

14

The area of this square is $2^2 \times 5^2$ cm^2. Work out the area, and the length of one side.



Area 100 cm^2

Side 10 cm

15

Write 196 as a product of its prime factors. Use your answer to show that 196 is a square number.

$196 = 2^2 \times 7^2$

$= (2 \times 7) \times (2 \times 7) = 14 \times 14$

196 = 14×14

16

Explain why $2^4 \times 3^2$ is not a multiple of 5.

Its only prime factors are 2 and 3.

5 is not one of them, so 5

does not divide it.