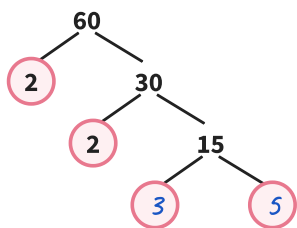


Prime Factor Decomposition

ANSWERS

1

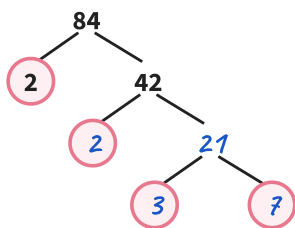
Write 60 as a product of its prime factors. Give your answer in index form.



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

2

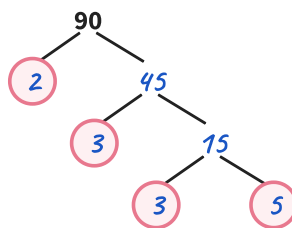
Write 84 as a product of its prime factors. Give your answer in index form.



Answer $84 = 2^2 \times 3 \times 7$

3

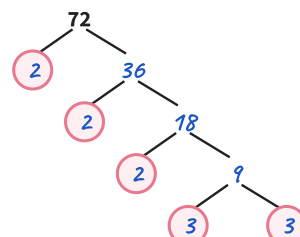
Write 90 as a product of its prime factors. Give your answer in index form.



Answer $90 = 2 \times 3^2 \times 5$

4

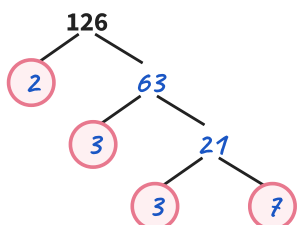
Write 72 as a product of its prime factors. Give your answer in index form.



Answer $72 = 2^3 \times 3^2$

5

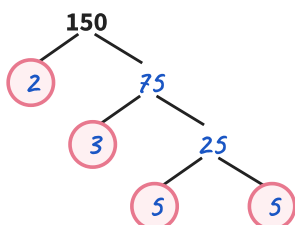
Write 126 as a product of its prime factors. Give your answer in index form.



Answer $126 = 2 \times 3^2 \times 7$

6

Write 150 as a product of its prime factors. Give your answer in index form.



Answer $150 = 2 \times 3 \times 5^2$

7

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

$8 \times 3 \times 5$

Answer 120

8

Tom writes $60 = 2 \times 5 \times 6$. Why is this not a product of prime factors? Write it correctly.

6 is not prime

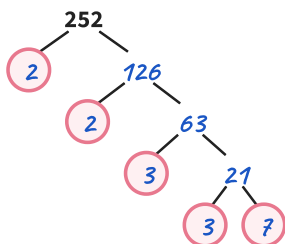
Answer $2^2 \times 3 \times 5$

Prime Factor Decomposition *further practice*

ANSWERS

9

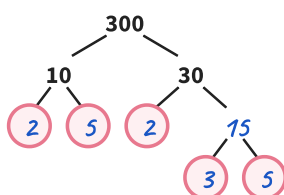
Write 252 as a product of its prime factors. Give your answer in index form.



Answer $252 = 2^2 \times 3^2 \times 7$

10

Complete the prime factor tree for 300. Then write 300 as a product of its prime factors in index form.



Answer $300 = 2^2 \times 3 \times 5^2$

11

Find the missing power.

$$2 \times 3^{\boxed{3}} \times 5 = 270$$

$270 = 2 \times 5 \times 27$ and $27 = 3 \times 3 \times 3$

12

Which of these numbers have no prime factors other than 2, 3 and 7?

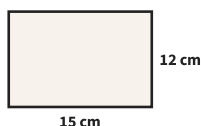
84 90 126 154

$90 = 2 \times 3^2 \times 5$, $154 = 2 \times 7 \times 11$

Answer 84 and 126

13

Work out the area of this rectangle. Write the area as a product of its prime factors in index form.



$$15 \times 12 = 180$$

Answer $180 = 2^2 \times 3^2 \times 5$

14

A crate holds 48 eggs, and $48 = 2^4 \times 3$. Write the number of eggs in 10 full crates as a product of its prime factors in index form.

$$10 = 2 \times 5, \text{ so } 2^4 \times 3 \times 2 \times 5$$

Answer $480 = 2^5 \times 3 \times 5$

15

Sara's number is $2 \times 3 \times 5 \times p$, where p is a prime number. Her number is between 200 and 250. What is p ?

$$2 \times 3 \times 5 = 30, \text{ and } 30 \times 7 = 210$$

Answer $p = 7$

16

There are 168 pupils in Year 8, and $168 = 2^3 \times 3 \times 7$. Mr Ali says the 168 pupils can be split into 9 equal groups. Is he right? Explain.

$$9 = 3 \times 3, \text{ but } 168 \text{ has only one } 3$$

Answer No