Prime Factorization

Break a number into prime factors with a factor tree.

Name _____ **Date** _____

Tonight's spark

Two friends break 60 into smaller numbers. Ana starts with 6 × 10. Ben starts with 4 × 15. Each keeps splitting until no piece can split. Will their last pieces match?

Guess first: will Ana and Ben end with the same pieces?

Number	Splits into
60	6 × 10
6	2 × 3
10	2 × 5
60	2 × 2 × 3 × 5

all prime

Our class model: the factor tree

Try it

Work it out on paper. Write one answer on each line.

1 **Which number is prime?**

A. 9 **B.** 13 **C.** 15 **D.** 21

My answer _____

2 **Which shows 18 as a product of prime factors only?**

A. 3 × 6 **B.** 2 × 9 **C.** 2 × 3 × 3 **D.** 1 × 18

My answer _____

3 **Complete: 30 = 2 × 3 × ___**

A. 5 **B.** 10 **C.** 15 **D.** 6

My answer _____

4 **Write 2 × 2 × 2 × 5 with a raised number showing the repeated factor.**

A. $3^2 \times 5$ **B.** 2 × 3 × 5 **C.** 2^5 **D.** $2^3 \times 5$

My answer _____

5 **Which is the prime factorization of 36?**

A. 4 × 9 **B.** $2^2 \times 3^2$ **C.** 6^2 **D.** 2 × 18

My answer _____

6 **Which number has the prime factorization 2 × 3 × 7?**

A. 12 **B.** 21 **C.** 42 **D.** 14

My answer _____

Talk about it

Are 6 and 10 prime numbers, or can they still split?

Home mission

Write 60 on paper. Ask your student to split it a different way than class, like 4 × 15. Does the tree still end in 2, 2, 3 and 5?

If we get stuck, ask

- Is this number prime, or can we still split it into two smaller numbers?
- What two numbers multiply together to make this one?
- Let's multiply our prime pieces back together. Do we get the start number?

Do it on a screen

Scan or type the link. Same lesson, with hints.

eduwonderlab.com/lessons/6-13/homework.html

How did it feel? (optional)

Tricky Getting there Got it