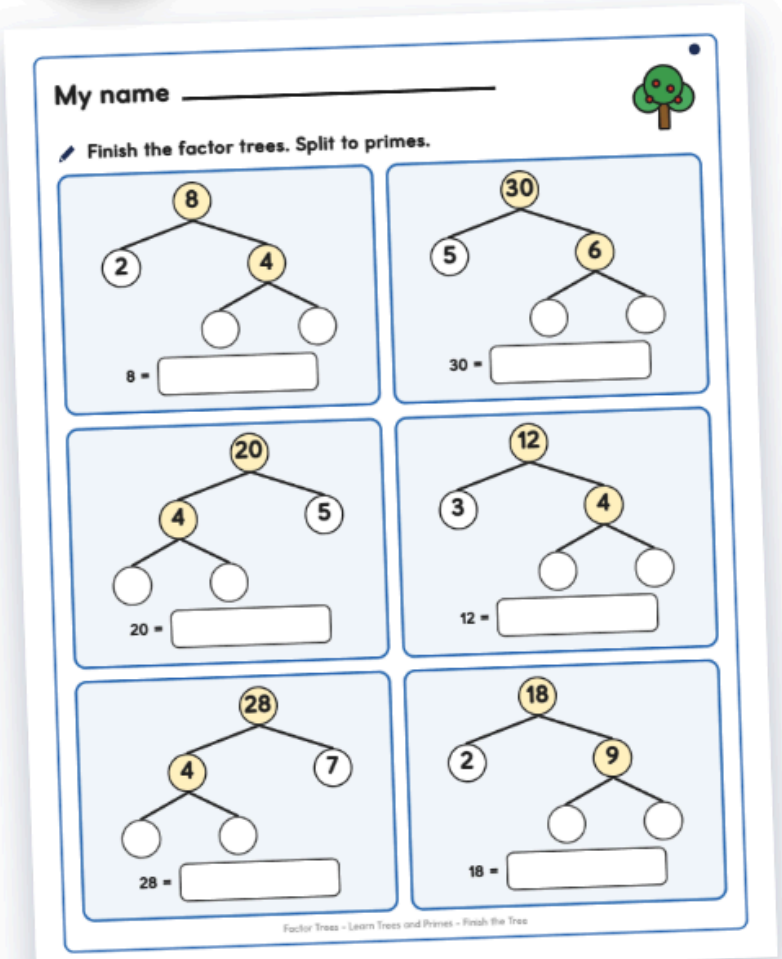
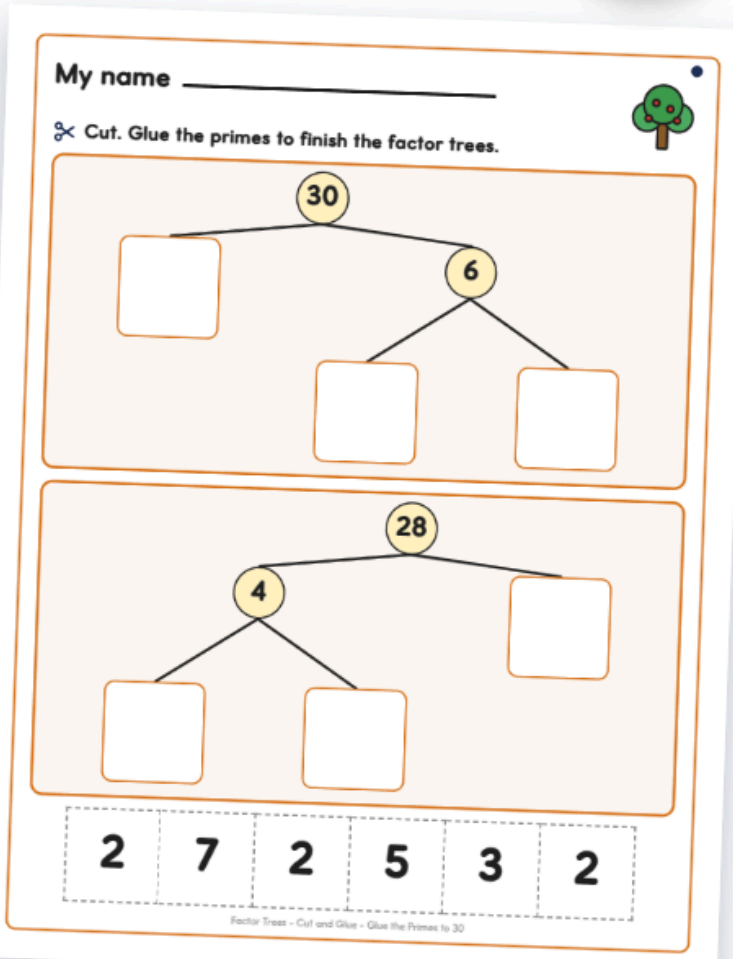
FACTOR TREES

20 SHEETS

Prime Factorization, Grades 4-5

CUT+ GLUE





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This is a fillable PDF

- Open it in a PDF reader (Adobe Acrobat Reader, Preview, or your browser), click into a box, type, and Save As.
- The name line, every tree box and every answer box are type-in fields. The primes are colored or circled by hand on a printed page.
- It works offline. No account, no subscription, no internet connection needed after you download it.

Print at 100 percent

Turn off fit to page and shrink to fit so the tree boxes stay big enough for small hands. Every page prints in color or in black and white. In black and white every circle keeps its outline, so a child can still read and write the numbers.

Student work

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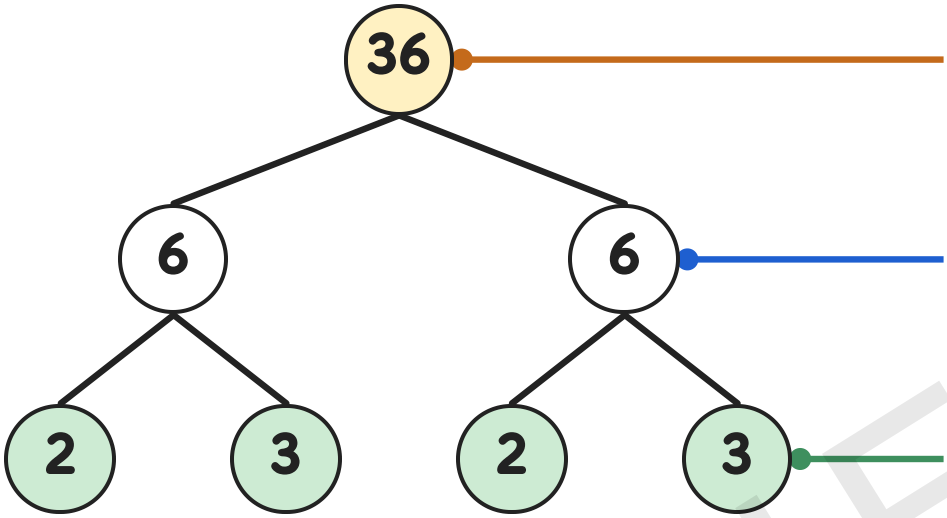
PREVIEW

My name _____



Learn the parts of a factor tree.

A Factor Tree for 36



top number
the number you start with

factor pair
two numbers that multiply to the number above

prime end
a number you cannot split

prime
exactly two factors: 1 and itself.
7 has 1, 7.

composite
more than two factors.
12 has 1, 2, 3, 4, 6, 12.

1 is neither prime nor composite.

Tell about the tree:

The top number is ☐

It splits into ☐ **x** ☐

The primes at the ends are ☐

36 = ☐

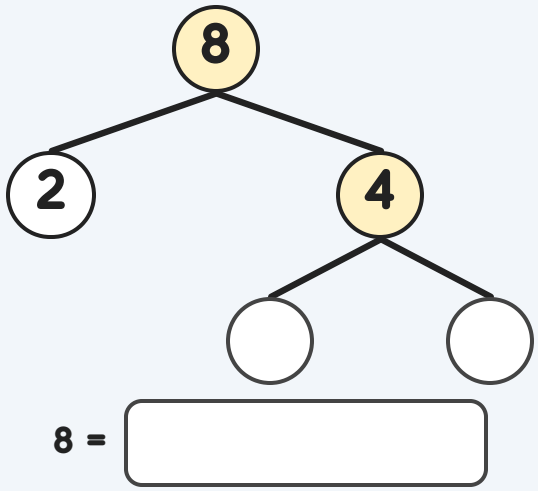
PREVIEW

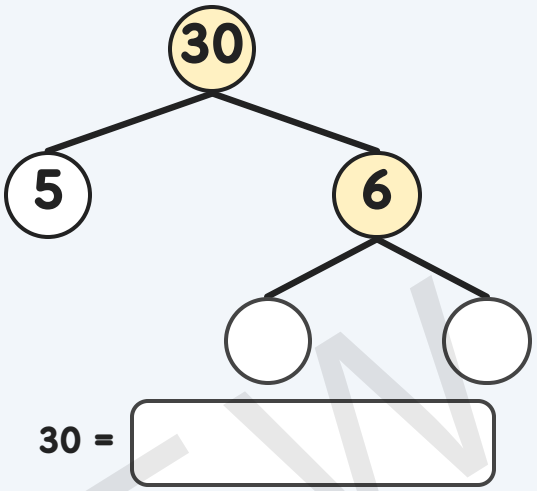
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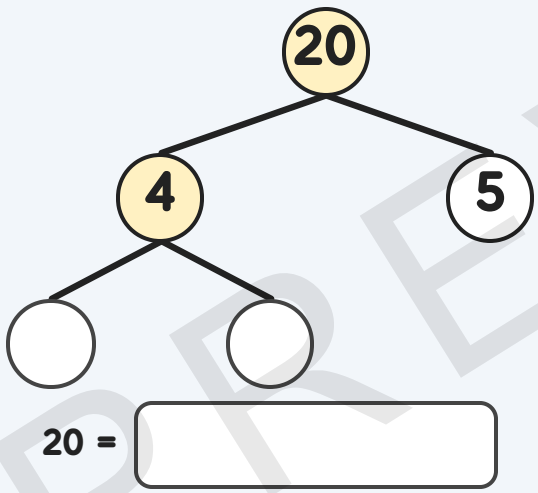
My name _____

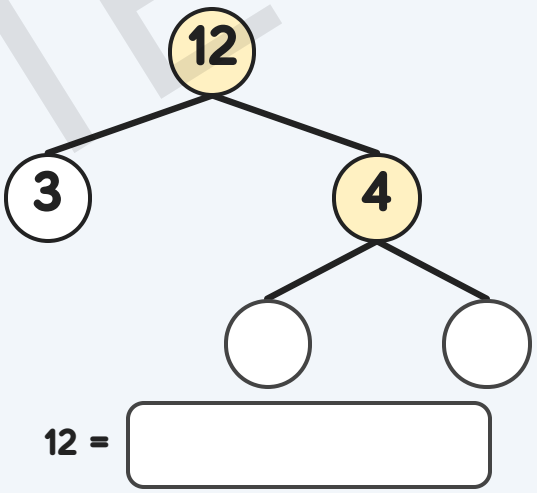


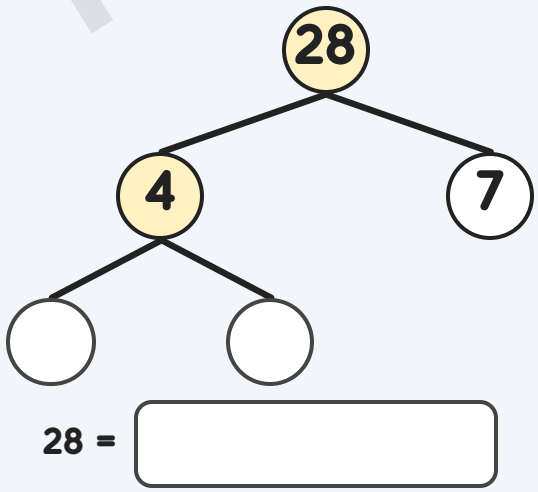
Finish the factor trees. Split to primes.

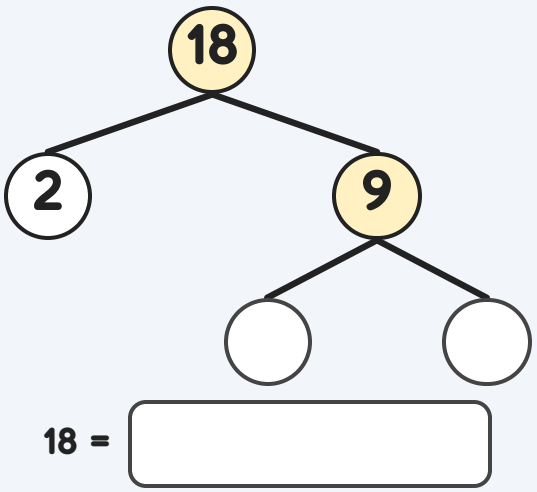












PREVIEW

My name _____



Prime or composite? Circle one. Show a pair.

51 prime or composite

51 = ☐ x ☐

37 prime or composite

37 = ☐ x ☐

91 prime or composite

91 = ☐ x ☐

61 prime or composite

61 = ☐ x ☐

49 prime or composite

49 = ☐ x ☐

83 prime or composite

83 = ☐ x ☐

77 prime or composite

77 = ☐ x ☐

97 prime or composite

97 = ☐ x ☐

PREVIEW

My name _____



Finish the factor trees. Numbers to 30.

21

21 = ☐

14

14 = ☐

27

27 = ☐

19

Prime? Write it once: 19 = 19

19 = ☐

26

26 = ☐

25

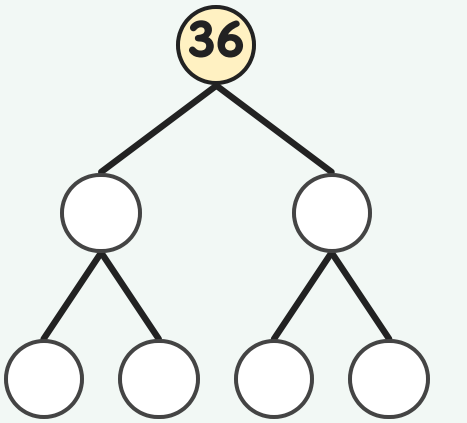
25 = ☐

PREVIEW

My name _____



Finish the factor trees. Numbers to 100.

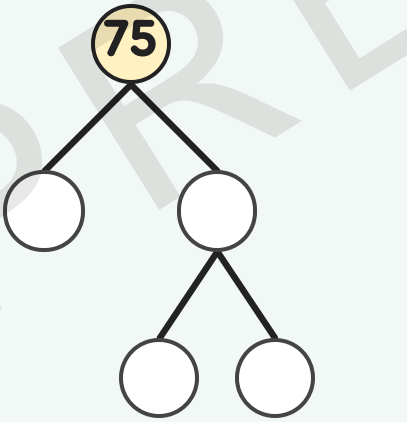


36 = _____

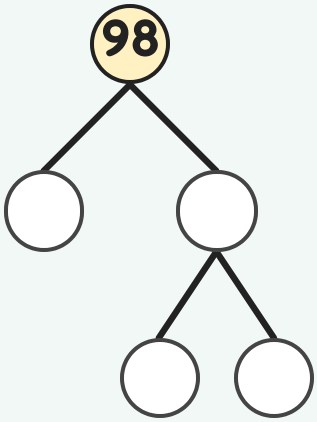
97

Prime? Write it once: 97 = 97

97 = _____



75 = _____



98 = _____

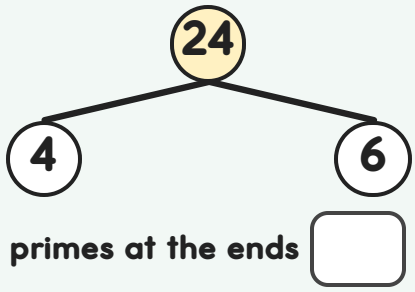
PREVIEW

Preview · Bright Path Sped

My name _____

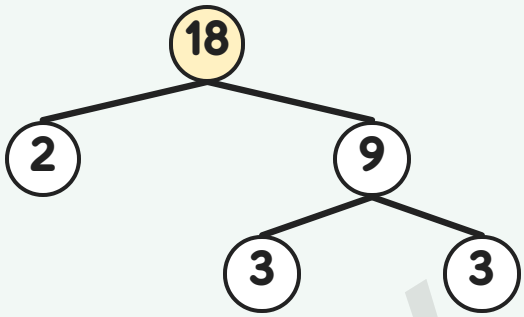


Color the prime ends. Is each factor tree done?



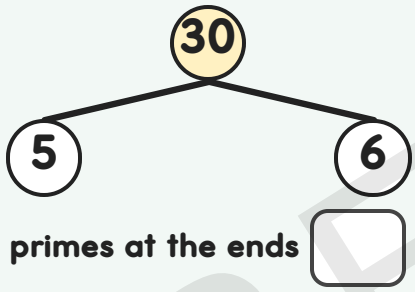
primes at the ends ☐

done or not done



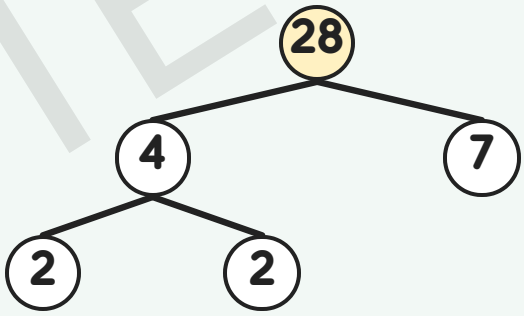
primes at the ends ☐

done or not done



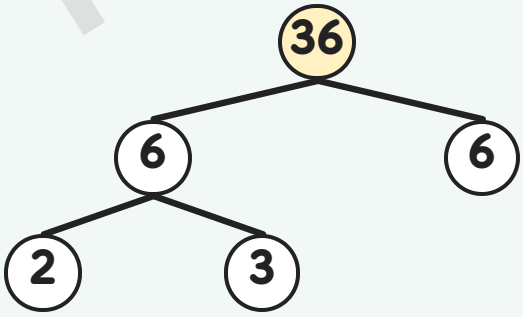
primes at the ends ☐

done or not done



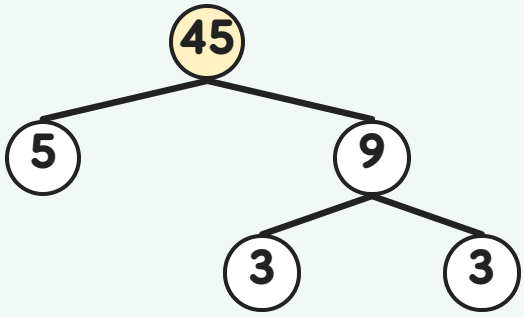
primes at the ends ☐

done or not done



primes at the ends ☐

done or not done



primes at the ends ☐

done or not done

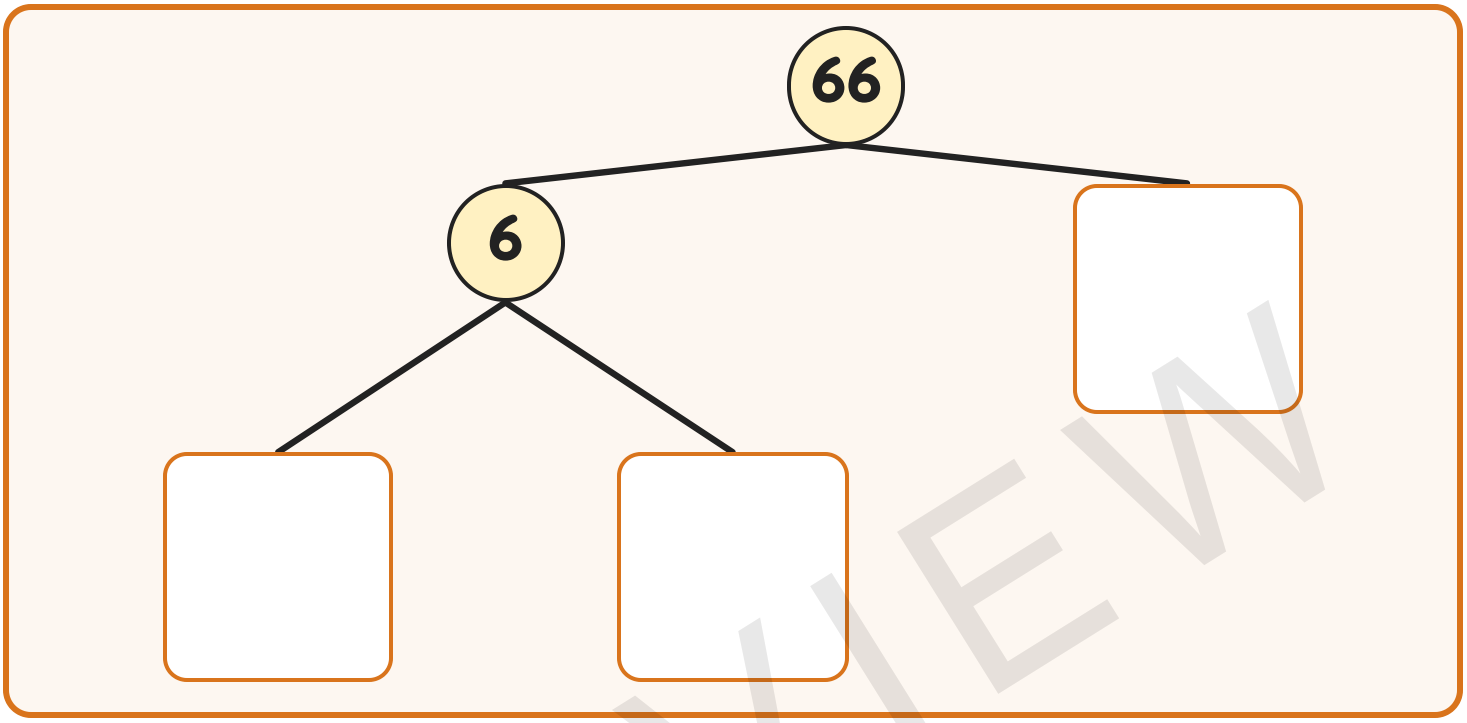
PREVIEW

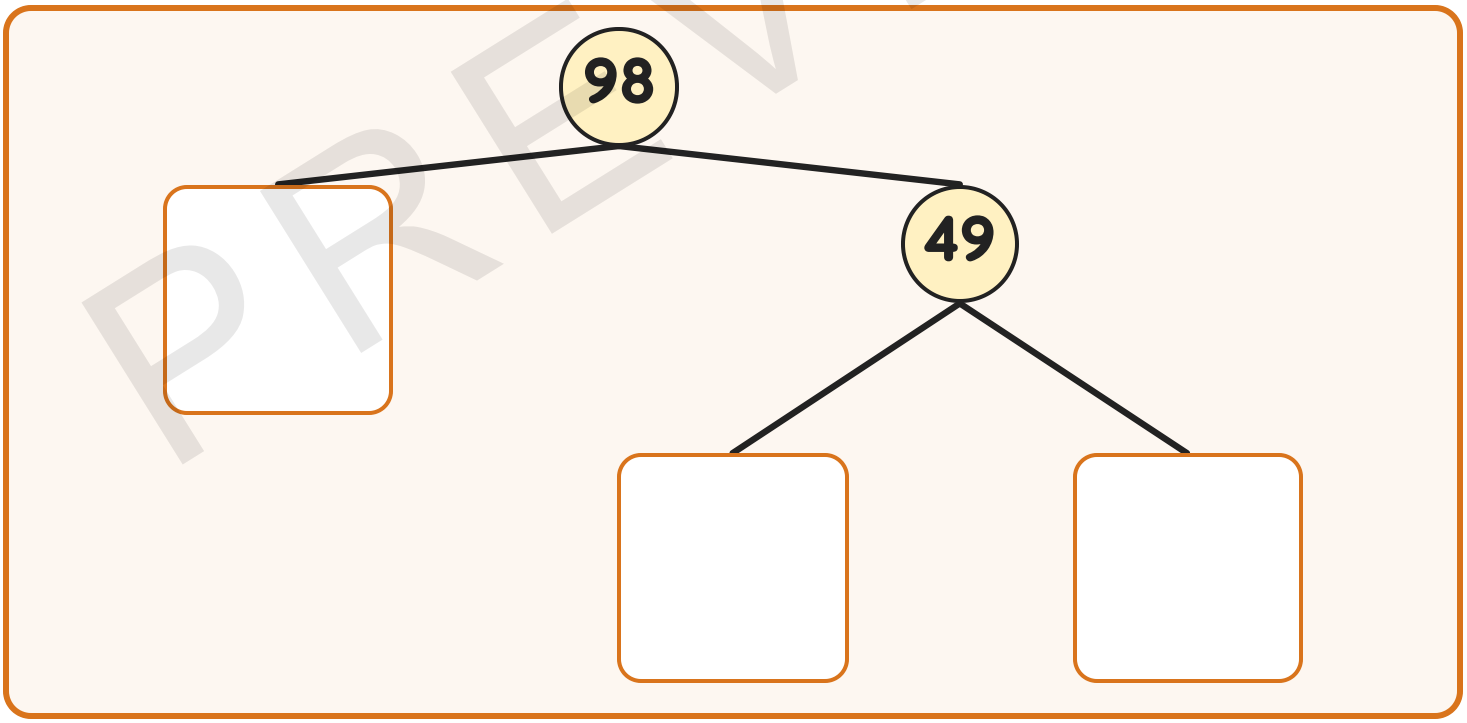
Preview · Bright Path Sped

My name _____



Cut. Glue the primes to finish the factor trees.





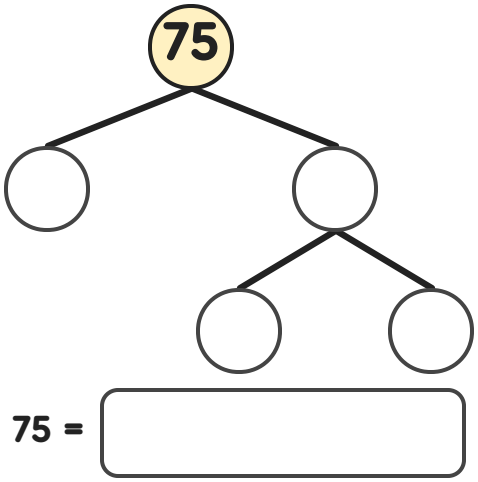
7	2	3	11	7	2

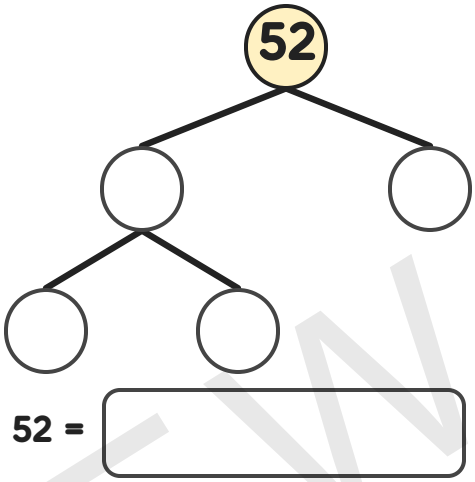
PREVIEW

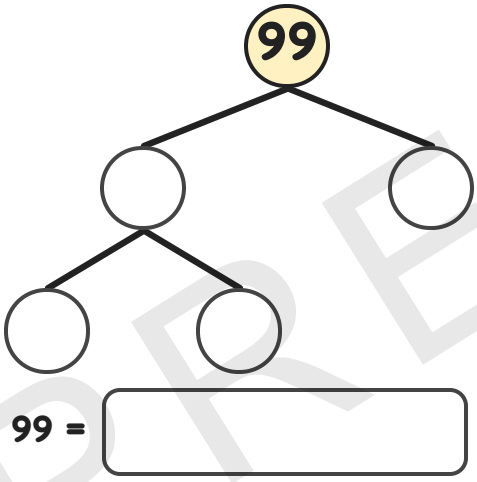
My name _____

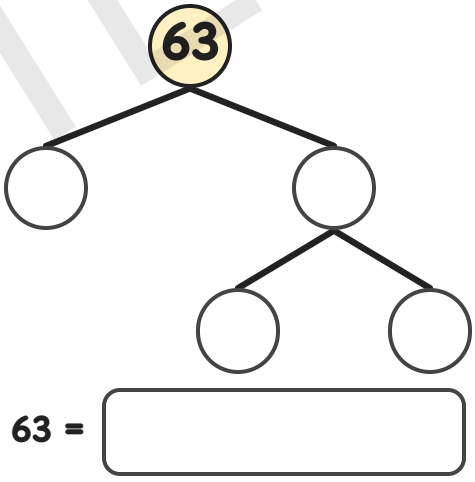


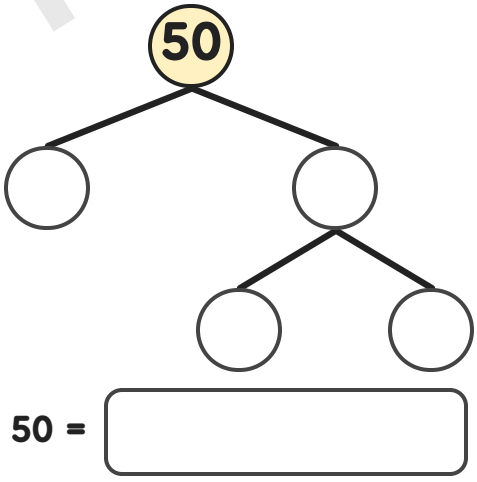
Finish the factor tree. Cut it out.

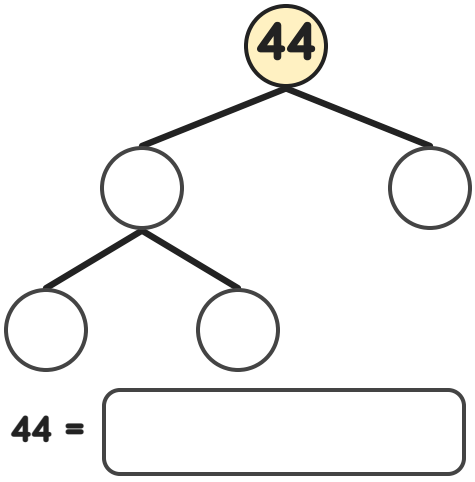










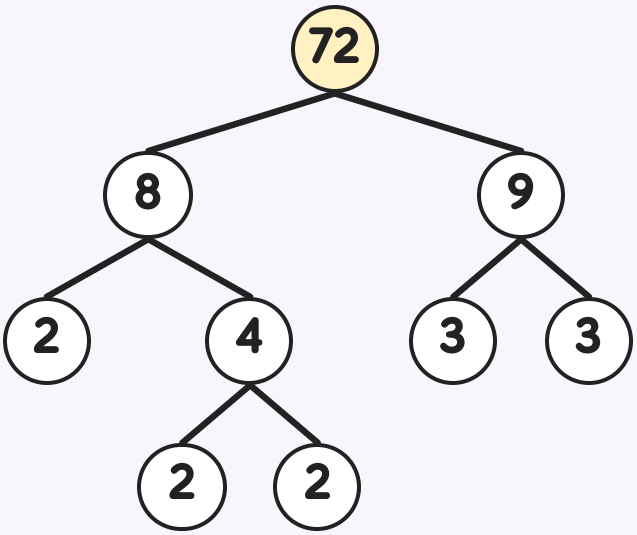


PREVIEW

My name _____

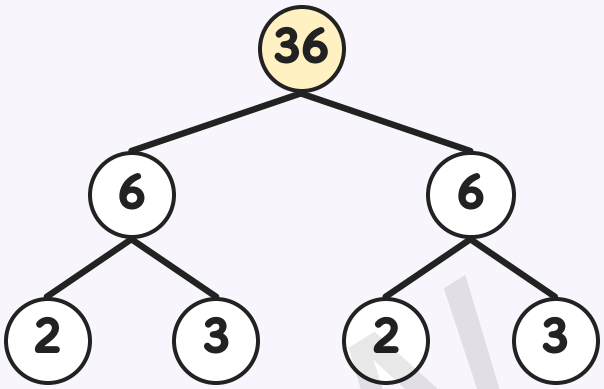


Write each prime factorization with exponents.



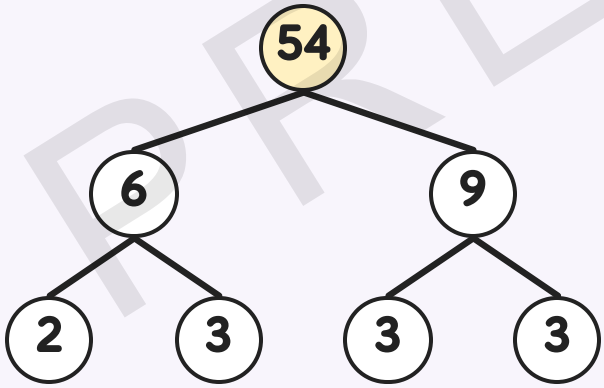
72 = _____

with exponents _____



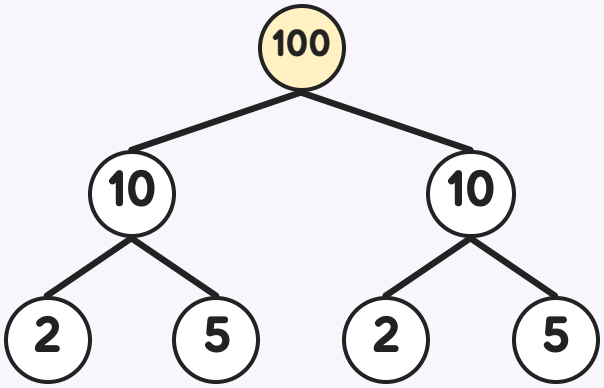
36 = _____

with exponents _____



54 = _____

with exponents _____



100 = _____

with exponents _____

PREVIEW

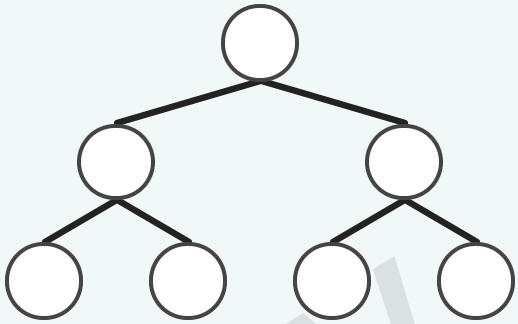
My name _____



Read the clues. Which number am I?

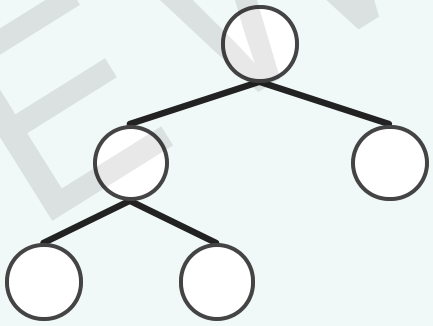
I am a number from 20 to 40. My only prime factors are 2 and 3. I am a multiple of 9. I have four prime factors, counting repeats.

I am ☐



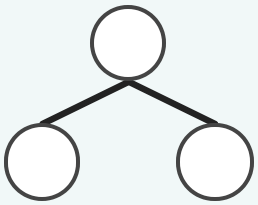
I am an even number from 40 to 60. 7 is one of my prime factors. I have three prime factors in all, counting repeats.

I am ☐



I am an odd number from 50 to 70. I have exactly two prime factors, and 5 is one of them. My two prime factors add up to 18.

I am ☐



I am a prime number from 80 to 90. My digits add up to 11.

I am ☐



PREVIEW

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Answer Key 1

Each answer is for the problem number on its page. Factors are listed smallest first.

Page 5: Finish the Tree

1) 8 = 2 x 2 x 2
2) 30 = 2 x 3 x 5
3) 20 = 2 x 2 x 5
4) 12 = 2 x 2 x 3
5) 28 = 2 x 2 x 7
6) 18 = 2 x 3 x 3

Page 6: Prime or Composite to 30

1) 15: composite, 3 x 5
2) 7: prime
3) 28: composite, 2 x 14
4) 23: prime
5) 12: composite, 2 x 6
6) 17: prime
7) 25: composite, 5 x 5
8) 21: composite, 3 x 7

Page 7: Prime or Composite to 100

1) 51: composite, 3 x 17
2) 37: prime
3) 91: composite, 7 x 13
4) 61: prime
5) 49: composite, 7 x 7
6) 83: prime
7) 77: composite, 7 x 11
8) 97: prime

Page 9: Trees to 30

1) 21 = 3 x 7
2) 14 = 2 x 7
3) 27 = 3 x 3 x 3
4) 19 is prime: 19 = 19
5) 26 = 2 x 13
6) 25 = 5 x 5

Page 8: Color the Primes (no tracker row)

The 25 primes from 1 to 100: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97.

Page 10: Trees to 50

1) 35 = 5 x 7
2) 44 = 2 x 2 x 11
3) 43 is prime: 43 = 43
4) 42 = 2 x 3 x 7
5) 50 = 2 x 5 x 5
6) 45 = 3 x 3 x 5

Page 11: Trees to 100

1) 36 = 2 x 2 x 3 x 3
2) 97 is prime: 97 = 97
3) 75 = 3 x 5 x 5
4) 98 = 2 x 7 x 7

Page 12: Trees and Exponents

1) $54 = 2 \times 3 \times 3 \times 3 = 2 \times 3^3$
2) $84 = 2 \times 2 \times 3 \times 7 = 2^2 \times 3 \times 7$
3) $100 = 2 \times 2 \times 5 \times 5 = 2^2 \times 5^2$
4) $60 = 2 \times 2 \times 3 \times 5 = 2^2 \times 3 \times 5$

Page 13: Color the Prime Ends

1) 24: 0 primes, not done (4, 6 still splits)
2) 18: 3 primes, done
3) 30: 1 prime, not done (6 still splits)
4) 28: 3 primes, done
5) 36: 2 primes, not done (6 still splits)
6) 45: 3 primes, done

Reading the key

- Boxes are drawn for one common split. Another correct split ends in the same primes, so check the factorization line.
- Any order of the primes is right: 2 x 3 x 5 and 5 x 3 x 2 match.

PREVIEW

Tracker and Roll-Up

Write the date. Color a box for each right answer. A blank row means not done yet, never wrong.

Student _____ Teacher _____ School year _____

Page	Sheet	Date	Right	Out of
5	Finish the Tree		☐☐☐☐☐☐	6
6	Prime or Composite to 30		☐☐☐☐☐☐☐☐	8
7	Prime or Composite to 100		☐☐☐☐☐☐☐☐	8
9	Trees to 30		☐☐☐☐☐☐	6
10	Trees to 50		☐☐☐☐☐☐	6
11	Trees to 100		☐☐☐☐	4
12	Trees and Exponents		☐☐☐☐	4
13	Color the Prime Ends		☐☐☐☐☐☐	6
14	Glue the Primes to 30		☐☐☐☐☐☐	6
15	Glue the Primes to 100		☐☐☐☐☐☐	6
16	Glue the Factorization		☐☐☐☐☐☐	6
17	Cut-Out Trees to 30		☐☐☐☐☐☐	6
18	Cut-Out Trees to 100		☐☐☐☐☐☐	6
20	Write It With Exponents		☐☐☐☐	4
21	Grow the Tree Up		☐☐☐☐☐☐	6
22	Number Riddles		☐☐☐☐	4
23	Spot the Mistake		☐☐☐☐	4

Roll-up: the colored boxes in the Right column are the number right. Count them for the totals.

Total right, all sheets _____ Total out of, sheets done _____

Notes for the team

PREVIEW

Factor Trees at Home

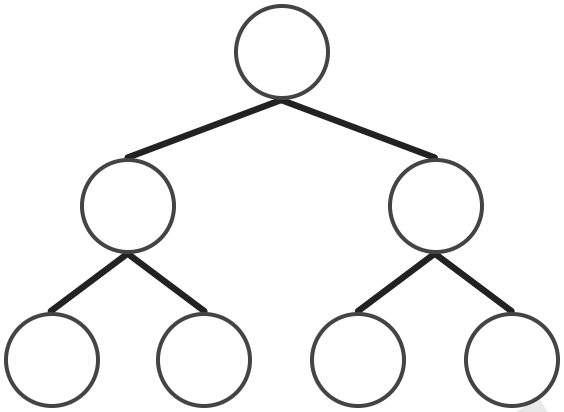
Send this page home with a child, or hand it to a family at a conference.

Student _____ Week of _____

How to help at home, in three steps

- Pick a number from 10 to 50 together. A phone number? A house number? A date on the calendar?
- Ask: which two numbers multiply to make it? Write them under it. Is each one prime? If not, split it again.
- When every end number is prime, multiply the ends. Do you get the number you started with?

Our family factor tree



Our number is

The primes at the ends are

Try saying

- "Can this number be split? What two numbers multiply to make it?"
- "Is that one prime? How do you know?"

Note from the teacher

Note from home

PREVIEW