Name_____

Prime Factorization Using Factor Tress

and both give the same prime factorization.
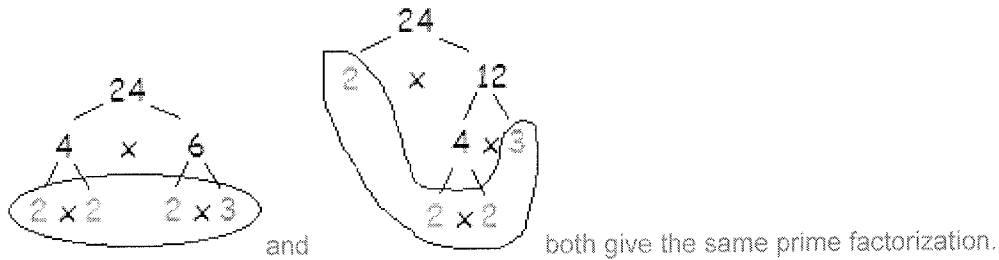
Other Examples of Factor Trees

 shows 2 x 3 x 5 as the prime factorization of 30. Note: You could get the same result with a different tree!

 shows 2 x 2 x 2 x 2 x 2 as the prime factorization of 32
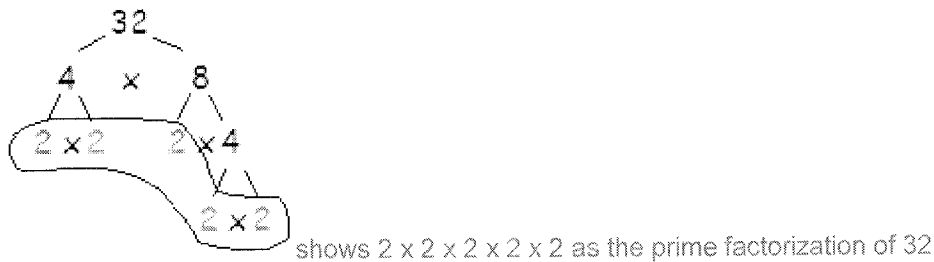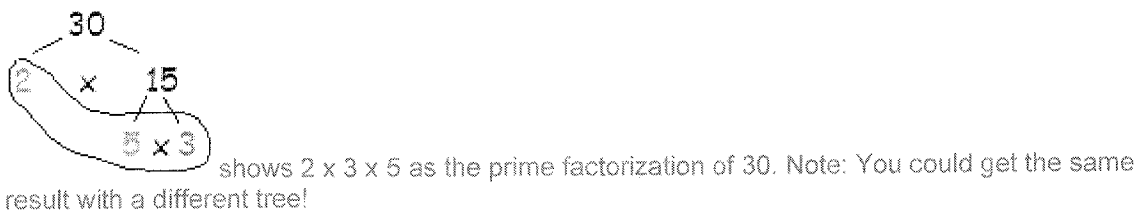
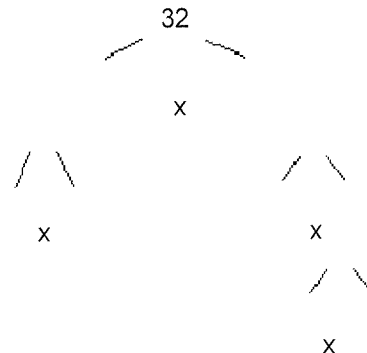Fill in the missing numbers in the factor trees then write the prime factorization (the first one is done for you):
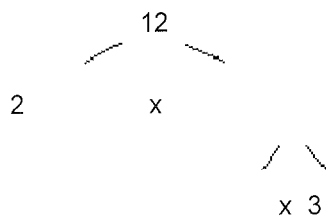
```
        12                                    32
      /    \                                /    \
    2       X                                     X
          /   \                         /  \          /  \
        X  3                           X            X
                                                  /   \
                                                 X
```

Prime Factorization: _____   Prime Factorization: _____

```
            50                                    48
         /     \                              /       \
       5    x    x                        4    x    x
              /   \                     /  \           /  \
            x   2                     x              x  4
                                                       /  \
                                                      x
```

Prime Factorization: Prime Factorization:

```
            36                                    75
         /     \                              /       \
       3    x    x                        25    x    x
              /   \                     /  \
            2   x                     x
               /  \
              x
```
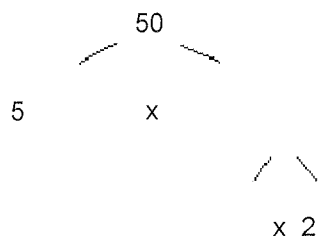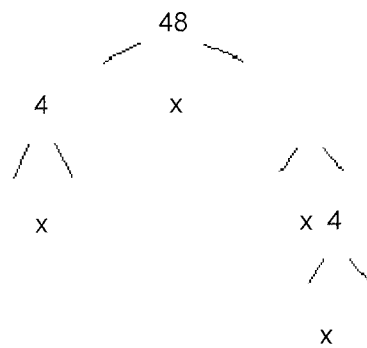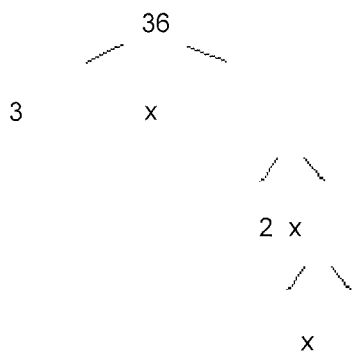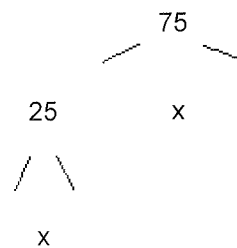
Prime Factorization: Prime Factorization:

Write the following Exponents in a factor string:

$2^2 \text{ x } 3^2 =$

$4^3 \text{ x } 2^3 =$

$5^2 \text{ x } 3^2 =$

Solve the following:

$2^3 =$

$5^2 =$

$4^2 =$

NAME _____ DATE _____

Prime Factorization

1 Show the prime factorization for each number. Then use the prime factors to help determine *all* the factors of that number.

Number	Prime Factorization	*All* the Factors (Thinking of Factor Pairs)
ex 105		1, 105 3, 35 5, 21 7, 15
a 18		
b 45		
c 72		

2 What factors do 18, 45, and 72 have in common?

3 What is the *greatest* factor that 18, 45, and 72 have in common?

NAME _____ DATE _____

Prime Factorization Review

1 Show the prime factorization for each number. Then use the prime factors to help determine *all* the factors of that number.

Number	Prime Factorization	All the Factors (Think of factor pairs.)
ex 105	105 5 21 3 7	1, 105 3, 35 5, 21 7, 15
a 24		
b 48		
c 78		

2 What factors do 24, 48, and 78 have in common?

3 What is the *greatest* factor that 24, 48, and 78 have in common?

Write all the factors for the numbers below (the first one is done for you):

4   **1**   **2**   **4**

7   1

9   1

12   1

15   1

18   1

24   1

Fill in the missing factors below:

Number					
8	1	2		8	
16	1		4		16
32	1	2			32
48	1		3		
50	1				
19	1				

Write all the factors for the numbers below and circle whether they are prime or composite numbers (the first one is done for you):

3   **1**   **3**   [Prime]   Composite

5   1   Prime   Composite

9   1   Prime   Composite

14   1   Prime   Composite

21   1   Prime   Composite

31   1   Prime   Composite

35   1   Prime   Composite

50   1   Prime   Composite

NAME _____ DATE _____

Prime & Composite Numbers

Use the following information to help solve the problems below.

A prime number has only two factors: itself and 1.	A composite number has more than two factors.	The number 1 is neither prime nor composite.
Number: 3	Number 6	Number: 1

1 For each number, circle prime or composite. Then list all of its factors.

Number	Circle one.	List all of the factors.
example 8	prime (composite)	1, 2, 4, 8
a 5	prime composite	
b 16	prime composite	
c 27	prime composite	
d 31	prime composite	
e 36	prime composite	
f 108	prime composite	
g 126	prime composite	

2 Julia says that prime numbers have to be odd and composite numbers have to be even. Is she correct? Explain how you know.

Name _____ Date _____

Homework Practice

Prime and Composite Numbers

Tell whether each number is *prime* or *composite*.

1. 75

2. 61

3. 96

4. 48

5. 29

6. 95

7. 68

8. 54

9. 171

10. 143

11. 117

12. 209

Problem Solving.
Solve.

13. A board is 24 inches long. Find all the whole-number lengths into which it can be evenly divided.

14. A ribbon is 36 inches long. Find all the whole-number lengths into which it can be evenly divided.

Spiral Review

Find the GCF of each set of numbers. (Lesson 9–1)

15. 6, 18

16. 16, 30

17. 14, 28

18. 27, 54

19. 8, 12

20. 49, 63

Name _____ Date _____

Homework Practice

Prime Factors

Tell whether each number is *prime, composite,* or *neither.* Find the prime factorization for each composite number.

1. 28

2. 36

3. 42

_____

_____

_____

_____

_____

_____

4. 11

5. 34

6. 7

_____

_____

_____

_____

_____

_____

7. 72

8. 23

9. 12

_____

_____

_____

_____

_____

_____

Spiral Review

Create a table to show the possible outcomes for the situation. Then, use the table to describe the probability of the event taking place.

10. Sonja has a bag of canned food. She has two cans of peas, five cans of plum tomatoes, and one can of soup. She grabs a can out of the bag without looking. Describe the probability of Sonja grabbing a can of peas.

_____

Name _____ Date _____

Homework Practice

Powers and Exponents

Complete the table.

	Exponent	Product
1.	6^2	
2.		5×5
3.	4^4	
4.		$2 \times 2 \times 2 \times 2$
5.	3^3	
6.	6^2	
7.		$4 \times 4 \times 4$
8.		3×3
9.	2^3	
10.		$5 \times 5 \times 5$
11.		$7 \times 7 \times 7$
12.	8^3	

Spiral Review

Find the prime factorization of the composite numbers.

13. 75

14. 77

15. 42

_____   _____   _____

Tell whether each number is *prime, composite,* or *neither.*

16. 17

17. 25

18. 44

_____   _____   _____

19. 7

20. 31

21. 0

_____   _____   _____