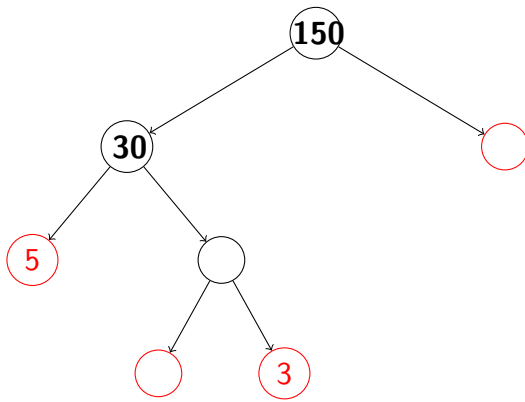


1. Numbers that are multiplied together are called \_\_\_\_\_.
3. A \_\_\_\_\_ number is a whole number greater than 1 that has only 1 and itself as factors.
5. To prime factor a number means to write it as a product of only \_\_\_\_\_ numbers.
7. In the exponential expression  $6^4$ , the number 6 is the \_\_\_\_\_, and the 4 is the \_\_\_\_\_.
15. Fill in the blanks to prime factor 150 using a factor tree.



The prime factorization of 150 is  $\_\_\_ \cdot \_\_\_ \cdot \_\_\_ \cdot \_\_\_$ .

19. For each exponential expression, what is the base and the exponent?
  - a.  $7^6$
  - b.  $15^1$

For 23, 27 and 31, List all of the factors of the given number from least to greatest.

23. 40

31. 100

27. 44

For 35 and 39, rewrite the number as the product of two whole numbers without using the number 1.

35. 27

39. 20

For 43 and 47, Factor the whole number using three factors without using the number 1.

43. 63

47. 60

For 51, Find the factors of the given number.

51. 37

For 55 and 59, determine whether or not the number is prime.

55. 99

59. 43

For 63, 67, 71 and 75, find the prime factorization of each number and write it using exponential notation.

63. 39

71. 147

67. 162

75. 102

For 79 and 83, write each product using exponents.

79.  $5 \cdot 5 \cdot 5 \cdot 5$

83.  $7 \cdot 7 \cdot 7 \cdot 9 \cdot 9 \cdot 7 \cdot 7 \cdot 7 \cdot 7$

For 87 and 91, evaluate each exponential expression.

87. a.  $2^5$

c.  $4^5$

b.  $5^2$

d.  $5^4$

91. a.  $9^1$

c.  $20^1$

b.  $1^9$

d.  $1^{20}$

101. PERFECT NUMBERS A whole number is called a **perfect number** when the sum of its factors that are less than the number equals the number. For example, 6 is a perfect number, because  $1 + 2 + 3 = 6$ . Find the factors of 28. Then use addition to show that 28 is also a perfect number.