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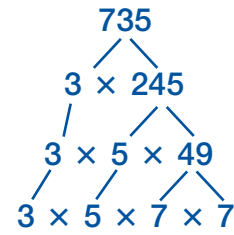
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The factors of a number are the numbers by which it can be divided evenly.

A **prime number**, such as 5, has only two factors, 1 and itself.

A **composite number**, such as 8, has more than two factors.

A factor tree shows the **prime factorization** of a number, that is, as the product of prime numbers. You can write the prime factorization with exponents.



$$735 = 3 \times 5 \times 7 \times 7 = 3 \times 5 \times 7^2$$

Find the prime factorization of each number using a factor tree. Then write it with exponents.

1.



2.



3.



50 = _____

26 = _____

84 = _____

4.



5.



6.



77 = _____

150 = _____

378 = _____

Write the prime factorization of each number. Use exponents.

7. 22 _____

13. 90 _____

8. 30 _____

14. 225 _____

9. 60 _____

15. 231 _____

10. 54 _____

16. 85 _____

11. 80 _____

17. 184 _____

12. 210 _____

18. 261 _____

Solve.

19. The prime factorization of a whole number is one factor raised to the third power. The number is greater than 300 and less than 400. What is the number?

20. The prime factorization of a whole number is one factor raised to the fifth power. The number is greater than 200 and less than 300. What is the number?

Percent (%) means *per hundred*. Percent is a ratio of some number to 100 ($\frac{n}{100}$). Ratios, fractions, and decimals can all be written as percents.

$$3 \text{ to } 10 = 3:10 = \frac{3}{10} = \frac{30}{100} = 0.30 = 0.3 = 30\%$$

Percents can name numbers larger than 1 or smaller than 0.01.

$$1\frac{3}{4} = 175\% \qquad 0.5\% = 0.005$$

Write each decimal as a fraction with a denominator of 100 and as a percent.

1. $0.45 =$ _____ 2. $0.03 =$ _____ 3. $0.86 =$ _____

4. $0.456 =$ _____ 5. $0.1 =$ _____ 6. $0.93 =$ _____

7. $1.2 =$ _____ 8. $0.004 =$ _____ 9. $0.025 =$ _____

10. About 0.55 of the calories in a burger come from fat. _____



Write each fraction as a percent.

11. $\frac{1}{2} =$ _____ 12. $\frac{1}{4} =$ _____ 13. $\frac{3}{4} =$ _____

14. $\frac{9}{10} =$ _____ 15. $\frac{7}{20} =$ _____ 16. $\frac{5}{8} =$ _____

17. $\frac{5}{4} =$ _____ 18. $\frac{7}{1,000} =$ _____ 19. $\frac{2}{250} =$ _____

20. Only $\frac{3}{1,000}$ of the population likes anchovy pizza. _____



Write each percent as a fraction with a denominator of 100 and as a decimal.

21. $20\% =$ _____ 22. $10\% =$ _____ 23. $15\% =$ _____

24. $37\% =$ _____ 25. $64\% =$ _____ 26. $4\% =$ _____

27. $250\% =$ _____ 28. $10.9\% =$ _____ 29. $0.1\% =$ _____

30. A certain cereal contains 18% sugar. _____

