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| **Question Pack - Math Fractions** |
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# Factors

If *f* divides a positive integer *n* with no reminder then *f* is a factor of *n*. If *f* is a prime number then it is a called a prime factor. Every positive integer has unique set of prime factors represented by the following equation.

##### $$n=\prod\_{1}^{m}(p\_{i})^{ni}$$

$$n=Any positive non prime integer$$

$$m=Total number of distinct prime factors$$

$$p\_{i}=i\_{th} prime factor $$

$$ni=Number of p\_{i} present$$

Example

$$100=2^{2}×5^{2}$$

$$750=2^{1}×3^{1}×5^{3}$$

Total number of factors can be computed by adding one to the powers of each prime factor and getting the product.

##### $$total number of factors for a non prime positive n=\prod\_{i=1}^{m}(ni+1)$$

Every factor of a number is expressed as product of 1 or more of its prime factors. $p\_{i}$ can be selected 0 to $ni$ number of ways. Hence the number $(ni+1)$ in the above equation. Choosing all the prime factors will result in the original number. In this expression choosing zero prime factors is included. These two are compensated by 1 and the number itself. As 1 and the number itself are also factors.

Example

$$\# of factors for 100=\left(2+1\right)\left(2+1\right)=9;They are 1,100, 2,50, 4,25, 5,20,10$$

Note: Square numbers have odd number of factors.

# Fractions Types

A fraction is part of a full objection. If you say ½ pizza, it means half of pizza. ¼ pizza is quarter part of pizza.

## Simple Fractions

Simple fractions are of the form $\frac{X}{Y}$.

## Mixed Fractions

Simple fractions are of the form $Z\frac{X}{Y}$.. The equivalent part of simple (improper) fraction is $\frac{Z\*Y+X}{Y}$

## Decimal Form

1/10 (tenth) is 0.1, 1/100 (hundredth) is .01, 1/1000 (thousandth) is 0.001, 1/10000 (ten thousandth) is .0001

## Percentage

To convert a percent to a fraction form divide the percent by a 100. (e.g.) 50% = 0.5.

## Repeating digit

### Basic repeating

0.3333333… = 0.3 = 3/9

0.454545… = 0.45 = 45/99

If you divide a number by 9, causes repeated numbers.

### zeros precede repeating digits

0.000454545… = 0.00045 = 45/99000

### Any decimal

Rewrite any decimal into fraction part and zeros preceding repeating part.

# Fraction Addition

# Fraction Subtraction

# Fraction Multiplication

# Fraction Division