

Numbers worth knowing by heart

Study guide · Math tricks

Numbers worth knowing by heart

Recognizing these on sight turns a lot of questions into one step.

Squares

$$1^2 = 1 \quad 2^2 = 4 \quad 3^2 = 9 \quad 4^2 = 16 \quad 5^2 = 25 \quad 6^2 = 36 \quad 7^2 = 49 \quad 8^2 = 64 \quad 9^2 = 81 \quad 10^2 = 100$$

$$11^2 = 121 \quad 12^2 = 144 \quad 13^2 = 169 \quad 14^2 = 196 \quad 15^2 = 225 \quad 16^2 = 256 \quad 17^2 = 289 \quad 18^2 = 324 \quad 19^2 = 361$$

$$20^2 = 400 \quad 21^2 = 441 \quad 22^2 = 484 \quad 23^2 = 529 \quad 24^2 = 576 \quad 25^2 = 625$$

Cubes

$$1^3 = 1 \quad 2^3 = 8 \quad 3^3 = 27 \quad 4^3 = 64 \quad 5^3 = 125 \quad 6^3 = 216 \quad 7^3 = 343 \quad 8^3 = 512 \quad 9^3 = 729 \quad 10^3 = 1,000$$

Powers of 2

$$2^0 = 1 \quad 2^1 = 2 \quad 2^2 = 4 \quad 2^3 = 8 \quad 2^4 = 16 \quad 2^5 = 32 \quad 2^6 = 64 \quad 2^7 = 128 \quad 2^8 = 256 \quad 2^9 = 512$$

$$2^{10} = 1,024 \quad 2^{11} = 2,048 \quad 2^{12} = 4,096$$

Primes below 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

There are 25 of them. 1 is not prime, and 2 is the only even prime.

Fractions, decimals, and percents

Fraction	Decimal	Percent
$\frac{1}{2}$	0.5	50%
$\frac{1}{3}$	$0.\overline{3}$	$33\frac{1}{3}\%$
$\frac{2}{3}$	$0.\overline{6}$	$66\frac{2}{3}\%$
$\frac{1}{4}$	0.25	25%
$\frac{3}{4}$	0.75	75%
$\frac{1}{5}$	0.2	20%
$\frac{2}{5}$	0.4	40%

$\frac{3}{5}$	0.6	60%
$\frac{4}{5}$	0.8	80%
$\frac{1}{6}$	$0.1\bar{6}$	$16\frac{2}{3}\%$
$\frac{5}{6}$	$0.8\bar{3}$	$83\frac{1}{3}\%$
$\frac{1}{8}$	0.125	$12\frac{1}{2}\%$
$\frac{3}{8}$	0.375	$37\frac{1}{2}\%$
$\frac{5}{8}$	0.625	$62\frac{1}{2}\%$
$\frac{7}{8}$	0.875	$87\frac{1}{2}\%$
$\frac{1}{9}$	$0.\bar{1}$	$11\frac{1}{9}\%$
$\frac{1}{10}$	0.1	10%
$\frac{1}{12}$	$0.08\bar{3}$	$8\frac{1}{3}\%$

A bar means the digits under it repeat forever. Eighths go up by 0.125 each: $1/8 = 0.125$, $2/8 = 0.25$, $3/8 = 0.375$, and so on.