Powers of Ten Examples

4 x 10 = 40 4 x 100 = 400 4 x 1,000 = 4,000 4 x 10,000 = 40,000 3.12 x 10 = 31.2 3.12 x 100 = 312 3.12 x 1,000 = 3,120 3.12 x 10,000 = 31,200 573.4 x 10 = 5,734 573.4 x 100 = 57,340 573.4 x 1,000 = 573,400 573.4 x 10,000 = 5,734,000	$4 \times 10^1 = 40$ $4 \times 10^2 = 400$ $4 \times 10^3 = 4{,}000$ $4 \times 10^4 = 40{,}000$ $3.12 \times 10^1 = 31.2$ $3.12 \times 10^2 = 312$ $3.12 \times 10^3 = 3{,}120$ $3.12 \times 10^4 = 31{,}200$ $573.4 \times 10^1 = 5{,}734$ $573.4 \times 10^2 = 57{,}340$ $573.4 \times 10^3 = 573{,}400$ $573.4 \times 10^4 = 5{,}734{,}000$	10 x larger than 4 is 40 100 x larger than 4 is 400 1,000 x larger than 4 is 4,000 10,000 x larger than 4 is 40,000 10 x larger than 3.12 is 31.2 100 x larger than 3.12 is 312 1,000 x larger than 3.12 is 3,120 10,000 x larger than 3.12 is 31,120 Anytime you multiple a number by a power of ten you move the decimal to the RIGHT. How many times do you move it? Look at the exponent <u>or</u> count the zeroes.
3.12 ÷ 10 = .312 3.12 ÷ 100 = .0312 3.12 ÷ 1,000 = .00312 3.12 ÷ 10,000 = .000312 573.4 ÷ 10 = 57.34 573.4 ÷ 100 = 5.734 573.4 ÷ 100 = .5734 573.4 ÷ 1,000 = .05734	$3.12 \div 10^1 = .312$ $3.12 \div 10^2 = .0312$ $3.12 \div 10^3 = .00312$ $3.12 \div 10^4 = .000312$ $573.4 \div 10^1 = 57.34$ $573.4 \div 10^2 = 5.734$ $573.4 \div 10^3 = .5734$ $573.4 \div 10^4 = .05734$ $573.4 \times 10^{-1} = 57.34$ $573.4 \times 10^{-2} = 5.734$ $573.4 \times 10^{-3} = .5734$ $573.4 \times 10^{-4} = .05734$	10 x smaller than 3.12 is .312 100 x smaller than 3.12 is .0312 1000 x smaller than 3.12 is .003120 10,000 x smaller than 3.12 is .0003120 One tenth of 3.12 = .312 One hundredth of 3.12 = .0312 One thousandth of 3.12 = .00312 Anytime you divide a number by a power of ten you move the decimal to the LEFT. How many times do you move it? Look at the exponent <u>or</u> count the zeroes.
$40{,}000 = 4 \times 10^4$ $312{,}000 = 3.12 \times 10^5$ $5{,}730{,}000 = 5.73 \times 10^6$ $7{,}100{,}000{,}000 = 7.1 \times 10^9$	$.0004 = 4 \times 10^{-4}$ $.00000312 = 3.12 \times 10^{-6}$ $.000000573 = 5.734 \times 10^{-7}$ $.00000000071 = 7.1 \times 10^{-10}$	

Powers of Ten Examples:

$2 \times 100 = 200$

$2 \times 10^3 = 2{,}000$

$2.3 \times 10^3 = 2{,}300$

$2.3 \times 100 = 230$

$2.3 \times 10^4 = 23{,}000$

$.765 \times 10^8 = 76{,}500{,}000$

$2 \div 100 = .02$

$2 \div 10^3 = .002$

$2.3 \div 10^3 = .0023$

$2.3 \div 100 = .023$

$2.3 \div 10^4 = .00023$

$.765 \div 10^9 = .00000000765$

$.765 \times 10^{-9} = .00000000765$

$10^0 = 1$

$10^1 = 10$	$10^{-1} = 1/10$
$10^2 = 100$	$10^{-2} = 1/100$
$10^3 = 1{,}000$	$10^{-3} = 1/1{,}000$
$10^4 = 10{,}000$	$10^{-4} = 1/10{,}000$
$10^5 = 100{,}000$	$10^{-5} = 1/100{,}000$

$10^{6} = 1{,}000{,}000$ $10^{-6} = 1/1{,}000{,}000$