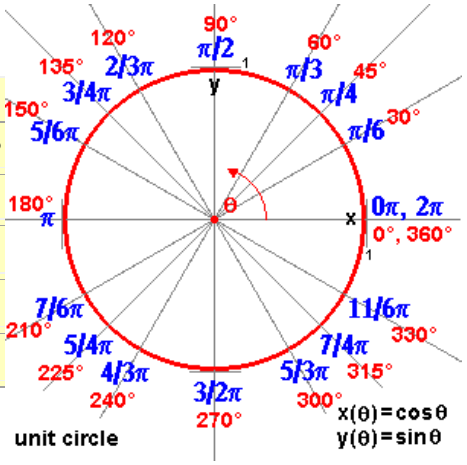
Not badbTrig Table of Common Angles

Angle (°)	0	30	45	60	90	120	135	150	180	210	225	240	270	300	315	330	360=0
angle (radians)	0	π/6	π/4	π/3	π/2	2/3π	3/4π	5/6π	π	7/6π	5/4π	4/3π	3/2π	5/3π	7/4π	11/6π	2π= 0
sin(a)	√(0/4)	√(1/4)	√(2/4)	√(3/4)	√(4/4)	√(3/4)	√(2/4)	√(1/4)	√(0/4)	-√(1/4)	-√(2/4)	-√(3/4)	-√(4/4)	-√(3/4)	-√(2/4)	-√(1/4)	√(0/4)
cos(a)	√(4/4)	√(3/4)	√(2/4)	√(1/4)	√(0/4)	-√(1/4)	-√(2/4)	-√(3/4)	-√(4/4)	-√(3/4)	-√(2/4)	-√(1/4)	√(0/4)	√(1/4)	√(2/4)	√(3/4)	√(4/4)
tan(a)	√(0/4)	√(1/3)	√(2/2)	√(3/1)	**√(4/0)**	-√(3/1)	-√(2/2)	-√(1/3)	-√(0/4)	√(1/3)	√(2/2)	√(3/1)	**-√(4/0)**	-√(3/1)	-√(2/2)	-√(1/3)	√(0/4)



Areas

Square = a^2 

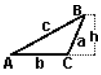
Rectangle = ab 

Parallelogram = bh 

Trapezoid = h/2 $(b_1 + b_2)$ 

Circle = πr^2 

Ellipse = $\pi r_1 r_2$ 

Triangle = (1/2) b h 

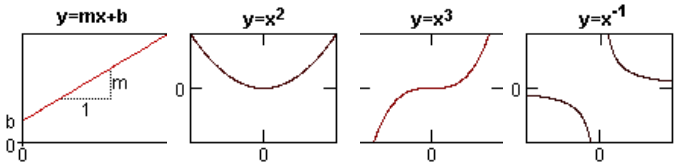
Equilateral triangle = (1/4)√(3) a^2

Triangle given SAS = (1/2) a b sin C

Triangle given a, b, c = √[s(s-a)(s-b)(s-c)]
when s = (a+b+c)/2

Regular polygon = (1/2) n sin(360°/n) S^2
when n = # of sides and
S = length from center to a corner

Algebraic Graphing



Volumes

Cube = a^3 

Rectangular prism = a b c 

Irregular prism = **b** h 

Cylinder = **b** h = *pi* r^2 h 

Pyramid = (1/3) **b** h 

Cone = (1/3) **b** h = 1/3 *pi* r^2 h 

Sphere = (4/3) *pi* r^3 

Ellipsoid = (4/3) *pi* r_1 r_2 r_3 

Surface Area

Cube = 6 a^2 

Prism:
(lateral area) = perimeter(**b**) L

(total area) = perimeter(**b**) L + 2**b** 

Sphere = 4 πr^2 

Length Conversions

Unit	mm	cm	m	km	in	ft	yd	mi
Millimeter	1	.1	.001	10^{-6}	.0397	.00328	.00109	6.21×10^{-7}
Centimeter	10	1	.01	.0001	.3937	.0328	.0109	6.21×10^{-6}
Meter	1000	100	1	.001	39.37	3.281	1.094	6.21×10^{-4}
Kilometer	10^{6}	10^{5}	1000	1	39,370	3281	1093.6	.621
Inch	25.4	2.54	.0254	2.54×10^{-5}	1	.0833	.0278	1.58×10^{-5}
Foot	304.8	30.48	.3048	3.05×10^{-4}	12	1	.333	1.89×10^{-4}
Yard	914.4	91.44	.9144	9.14×10^{-4}	36	3	1	5.68×10^{-4}
Mile	1.6×10^{6}	1.01×10^{5}	1.61×10^{3}	1.6093	63,360	5280	1760	1

Area Conversions

Unit	cm^2	m^2	km^2	ha	in^2	ft^2	yd^2	mi^2	ac
Sq. Centimeter	1	.0001	10^{-10}	10^{-8}	.155	1.08×10^{-3}	1.2×10^{-4}	3.86×10^{-11}	2.47×10^{-8}
Sq. Meter	10^{4}	1	10^{-6}	10^{-4}	1550	10.76	1.196	3.86×10^{-7}	2.47×10^{-4}
Sq. Kilometer	10^{10}	10^{6}	1	100	1.55×10^{9}	1.076×10^{7}	1.196×10^{6}	.3861	247.1
Hectare	10^{8}	10^{4}	.01	1	1.55×10^{7}	1.076×10^{5}	1.196×10^{4}	3.861×10^{-3}	2.471
Sq. Inch	6.452	6.45×10^{-4}	6.45×10^{10}	6.45×10^{-8}	1	6.94×10^{-3}	7.7×10^{-4}	2.49×10^{-10}	1.574×10^{7}
Sq. Foot	929	.0929	9.29×10^{-8}	9.29×10^{-6}	144	1	.111	3.587×10^{-8}	2.3×10^{-5}
Sq. Yard	8361	.8361	8.36×10^{-7}	8.36×10^{-5}	1296	9	1	3.23×10^{-7}	2.07×10^{-4}
Sq. Mile	2.59×10^{10}	2.59×10^{6}	2.59	259	4.01×10^{9}	2.79×10^{7}	3.098×10^{6}	1	640
Acre	4.04×10^{7}	4047	4.047×10^{-3}	.4047	6.27×10^{-10}	43,560	4840	1.562×10^{-3}	1

Volume Conversion

Unit	mL	liters	m^3	in^3	ft^3	gal	ac-ft	Million gal
milliliter	1	.001	10^{-6}	.06102	3.53×10^{-5}	2.64×10^{-4}	8.1×10^{-10}	2.64×10^{-10}
liter	10^{3}	1	.001	61.02	.0353	.264	8.1×10^{-7}	2.64×10^{-7}
cu. meter	10^{6}	1000	1	61,023	35.31	264.17	8.1×10^{-4}	2.64×10^{-4}
cu. inch	16.39	1.64×10^{-2}	1.64×10^{-5}	1	5.79×10^{-4}	4.33×10^{-3}	1.218×10^{-8}	4.329×10^{-9}
cu. foot	28,317	28.317	.02832	1728	1	7.48	2.296×10^{-5}	7.49×10^{6}
U.S. gallon	3785.4	3.785	3.78×10^{-3}	231	.134	1	3.069×10^{-6}	10^{6}
acre-foot	1.233×10^{9}	1.233×10^{6}	1233.5	75.27×10^{6}	43,560	3.26×10^{5}	1	.3260
million gal	3.785×10^{9}	3.785×10^{6}	3785	2.31×10^{8}	1.338×10^{5}	10^{6}	3.0684	1

Dry Measuremen		Avoirdupois Weight		Liquid Measurements		Time Conversion					
2 pints	1 quart	16 drams	1 ounce	4 gills	1 pint	**Unit**	**Sec**	**Min**	**Hours**	**Days**	**Years**
8 quarts	1 peck	16 ounces	1 pound	2 pints	1 quart	**Sec.**	1	1.67×10^{-2}	2.77×10^{-4}	1.157×10^{-5}	3.17×10^{-8}
4 pecks	1 bushel	100 lbs	100 weight (cwt)		1 gallon	**Min.**	60	1	1.67×10^{-2}	6.94×10^{-4}	1.90×10^{-6}
1 cord	128 ft^3	2,000 lbs	1 ton (T.)	$31\frac{1}{2}$ gal	1 barrel	**Hour**	3600	60	1	4.17×10^{-2}	1.14×10^{-4}
		2,240 lbs	long ton (L.T.)	2 barrels	hogshead	**Day**	8.64×10^{4}	1440	24	1	2.74×10^{-3}
						Year	3.15×10^{7}	5.256×10^{5}	8760	365	1

Matter and Energy

W=FD	W (ML^2/T^2); F (ML/T^2); D (L)
F=ma	F (ML/T^2); m (M); a (L/T^2)
w=mg	w (ML/T^2); g (M/T^2); m (M)
ρ=m / V	ρ (M/L^3); m (M); V (L^3)
γ= w / v	γ (M/L^2T^2); (ML/T^2); V (L^3)
P=F/A	P (M/LT^2); F (ML/T^2); A (L^2)

Porosity

$n= 100V_v/V$	n (%); V_v (L^3,cm^3, m^3); V (L^3,cm^3, m^3)
$n=100[1-(\rho_b/\rho_d)]$	n(%); ρ_b (M/L^3, g/cm^3, kg/m^3); ρ_d (M/L^3, g/cm^3,kg/m^3)
$Cu = d_{60}/d_{10}$	

Notation			
a Acceleration A Area A_t Cross-sectional area of a falling head tube A_c Cross-sectional area of a permeameter sample b Aquifer thickness C Shape factor C_u Uniformity Coefficient d Grain size D Distance d_t Inside diameter of a falling head tube d_c Inside diameter of a per-meameter sample chamber			