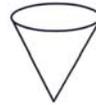# HELPFUL CALCULATIONS & FORMULAS
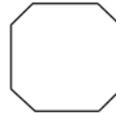
Area of a parallelogram = length × width

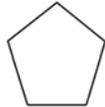Volume of a cone = radius squared × 1.0472

Area of a hexagon (6 equal sides) = length of one side squared × 2.598

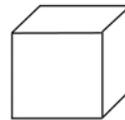Area of octagon (8 equal sides) = length of one side squared x 4.838

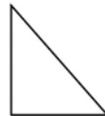Area of a pentagon (5 equal sides) = length of one side squared × 1.720
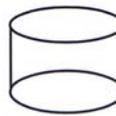
Area of trapezoid = $\frac{(A + B) \times H}{2}$

Area of other triangles = base × height at right angle to base ÷ 2

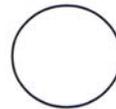Volume of cube or rectangular box = length × width × height
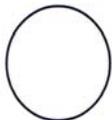
Area of a right triangle = length × width ÷ 2

Volume of a cylinder = radius squared × 3.1416 × length of cylinder

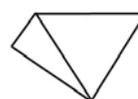Area of a rectangle or square = length × width

Volume of a sphere = radius cubed × 4.1888

Area of a circle = radius squared × 3.1416: or diameter squared × 0.7854

Volume of a pyramid = area of base × 1/3 the height

Handy Formulas: To find circumference of a circle with diameter is known, multiply diameter by 3.1416. To find diameter when circumference is known, divide circumference by 3.1416 or multiply by 0.3183.

Estimating ACRES within a given area

W = 300 feet
L = 1,742 feet
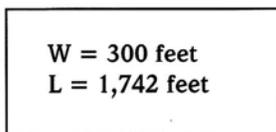
Acres = $\frac{\text{length (L) x width (W)}}{43,560}$

Example:
$\frac{1,742 \times 300}{} = 11.997 = 12$ acres

Acres = $\frac{\frac{1}{2} \text{(length (L) x width (W))}}{43,560}$

Example:
$\frac{\frac{1}{2} 1,840 \times 226}{43,560} = 4.77$ acres

L=1,840 feet   W=226 feet
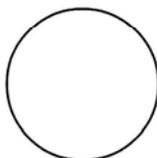
Acres = $\pi r^2 / 43,560$
p = 3.14
r = radius

Example: $\frac{3.14 \times 340^2}{43,560} = 8.33$ acres

Pre-Cast Concrete Association of America

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LENGTH

Inch = 1/12 or 0.083 ft = 2.54 cm = 25.4 mm
Foot = 12 in = 0.3048 m = 30.48 cm
Yard = 36 in = 3 ft = 0.9144 m
Rod = 16.5 ft = 5.5 yd = 5.03 m
Furlong = 22 yd
Mile = 1,760 yd = 5,280 ft = 1.61 km = 8 furlongs = 80 chains

AREA

Square inch = 0.007 sq ft = 6.45 sq cm
Square foot = 144 sq in = 929.03 sq cm
Square yard = 9 sq ft = 0.836 sq m
Square rod = 30.25 sq yd
Acre = 4,840 sq yd = 43,560 sq ft = 160 sq rod = 4.047 sq m = 0.405 hectare
Hectare = 10,000 sq m = 2.47 acres
Square mile = 640 acres = 2.59 sq km = 1 section
Section = 1 sq mile = 640 acres = 2.59 sq km

LIQUID MEASURES

Teaspoon = 0.1667 fl oz = 80 drops = 4.93 ml
Tablespoon = 3 tsp = 0.5 fl oz = 14.8 ml
Fluid ounce = 2 tbsp = 29.58 ml
Cup = 8 fl oz = 16 tbsp = 236.6 ml
Pint = 2 cups = 16 fl oz = 473.2 ml
Quart = 4 cups = 2 pints = 32 fl oz = 0.946 l
Liter = 2.113 pints = 1,000 ml = 1.057 quarts
Gallon = 4 quarts = 8 pints = 128 fl oz = 3.785 l
Cubic foot of water = 7.5 gal = 62.4 lbs = 28.3 l
Acre inch of water = 27,154 gal = 3,630 cu ft

DRY MEASURES

Teaspoon (level) = 0.35 cu in = 5.74 cu cm
Tablespoon (level) = 1.05 cu in = 3 level tsp = 17.25 cu cm
Cup = 16 level tbsp = 16.8 cu in = 275.3 cu cm
Pint = 2 cups = 32 level tbsp = 33.6 cu in = 550.6 cu cm

VOLUMES

Cubic inch = 0.00058 cu ft = 16.4 cu cm
Cubic foot = 1,728 cu in = 0.037 cu yd = 0.028 cu m
Cubic yard = 27 cu ft = 0.765 cu m

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Association of America**
♦
**"Your Industry's
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LENGTH

0.621	Kilometer, km	Mile, mi	1.609
1,094	Meter, m	Yard, yd	0.914

AREA

0.383	Kilometer^2, km^2	Mile^2, mi^2	2.590
247.1	Kilometer^2, km^2	Yard^2, yd^2	0.914

VOLUME

0.00973	Cubic meter, m^3	Acre-inch	102.8
3.532	Hectoliter, hl	Cubic foot, ft^3	0.2832
2.838	Hectoliter, hl	Bushel, bu	1.352

MASS

1.102	Ton (metric)	Ton (English)	0.9072
2.205	Quintal, q	Hundredweight, cwt (short)	0.454

PRESSURE

14.5	Bar	Lb/inch^2, psi	0.06895
0.9869	Bar	Atmosphere, atm	1.013
0.9678	Kg(wt)/cm^2	Atmosphere, atm	1.013

TEMPERATURE

$(1.8 \times c) + 32$	Celcius, C	Fahrenheit, F	0.56(F-32)
	-17.8° C	0° F	
	0° C	32° F	
	20° C	68° F	
	100° C	212° F	

WEIGHTS

Gram	=	1543 grains	=	1,000 milligrams
Ounce	=	28.35 grams	=	437. grains
Pound	=	16 ounce	=	7,000 grains
Kilogram	=	1,000 grams	=	2.205 pounds
Ton (short)	=	2,000 pounds	=	0.907 metric tons
Ton (long)	=	2,240 pounds	=	1.016 metric tons

VOLUME CONVERSION FACTORS

cu ft × 7.48 = gallons
cu ft × 62.4 = lbs of water
gallons × 8.333 = lbs of water
gallons × 0.1337 = cu ft
cu in ÷ 1,728 = cu ft
cu yd × 27 - cu ft
cu ft ÷ 27 = cu yd

METRIC PREFIX DEFINITIONS

Mega = 1,000,000
Micro = 0.000001
Kilo = 1,000   Milli = 0.001
Hecto = 1000   Centi = 0.01
Deca = 10   Deci = 0.1
Basic Metric Unit = 1