



BASIC MEASUREMENT SYSTEMS

All measurement is derived from seven basic units and is described internationally as the *Système International d'Unités* (SI) or sometimes referred to as SI-metric. These basic units are:

Ampere	A	Electric Current
Candela	cd	Luminosity (intensity of light)
Kelvin	K	Thermodynamic Temperature
Kilogram	kg	Weight (mass)
Meter (Metre)	m	Length
Mole	mol	Substance (molecule)
Second	s	Time

LENGTH

Unit	Abbr	SI/metric	Imperial
Angstrom	Å	.0001 μ (10 ⁻¹⁰)	.000,000,004 in
Cable	cb	219.456 m	120 fathoms/720 ft
Centimeter	cm	.01 m	.3937 in
Chain (Gunter's/surveyor's)	chG	20.1168 m	66 feet/4 rods
Chain (Ramden's/engineer's)	chR	30.48 m	100 ft
Decimeter	dm	.1 m	3.937 in
Dekameter	dam	10 m	32.8 ft
Fathom	fm	1.83 m	6 ft
Foot	ft	.3048 m	12 in
Furlong	fur	201.168 m	1/8 statute mi
Hand (horse's height)	—	10.16 cm	4 in
Inch	in	2.54 cm	—
Kilometer	km	1,000 m	.621 mi
League	—	4.8 km	3 statute mi
Link (Gunter's)	—	.201 m	7.92 in
Link (Ramden's)	—	.305 m	12 in
Meter	m	—	39.37 in
Micrometer (Micron)	μ	.001 mm	3.9370x10 ⁻⁵ in
Mile (statute/land)	mi	1.609 km	5,280 ft
Mile (nautical/sea)	nmi	1.85 km	6076.11549 ft
Millimeter	mm	.001 m	.03937 in
Mil	mil	.0254 mm	.001 in
Point (type size)	—	.353 mm	.0138 in
Pica (type size)	—	4 mm	12 points (.1668 in)
Rod	rd	5.029 m	16.5 ft
Yard	yd	.9144 m	3 ft

AREA

Unit	Abbr	SI/metric	Imperial
Acre	A	4,047 m ²	43,560 ft ²
Are	a	100 m ²	1076.39 ft ²
Hectare	ha	10,000 m ²	2.471 A
Square centimeter	cm ²	100 mm ²	.155 in ²
Square foot	ft ²	.0929 m ²	144 in ²
Square inch	in ²	6.4516 cm ²	—
Square kilometer	km ²	1,000,000 m ²	.386 mi ²
Square meter	m ²	10,000 cm ²	10.764 ft ²
Square mile	mi ²	2.59 km ²	640 A
Square millimeter	mm ²	—	.00155 in ²
Square rod	rd ²	25.293 m ²	272.25 ft ²
Square yard	yd ²	.836 m ²	9 ft ²

ENERGY

Unit	Abbr	Equivalent
British Thermal Unit	Btu	.0002929 Kw
Calorie (@15.5°C)	cal ₁₅	4.1858 J
Horsepower (mechanical)	HP	746 watts
Joule (absolute)	J	.7376 ft/lbs
Kilowatt	Kw	1.341 HP

VOLUME (LIQUID)

Unit	Abbr	SI/Metric	Imperial
Barrel (US) fluid	bbl	26.2 gal (UK)	31.5 gal*
Dram (US)	dr	3.697 ml	.125 oz
Gill (1/4 UK pint)	gi	.142 L	4.8038 oz
Gallon (UK)	gal	4.546 L	1.201 gal
Gallon (US)	gal	3.785 L	4 qt
Liter	L	.001 m ³	1.057 qt
Ounce, fluid (UK)	oz	.028 L	.96 oz
Ounce, fluid (US)	oz	.02957 L	2 tbs
Pint (UK)	pt	1.2 pt (US)	19.2 oz
Pint (US)	pt	.833 pt (UK)	16 oz
Quart	qt	.946 L	2 pt

*A barrel may be recognized by different liquid sizes in different states and for different substances. Sizes may be stated in gallons, cubic inches or weight. See notes on page 2.

VOLUME (DRY)

Unit	Abbr	SI/Metric	Imperial
Cubic centimeter	cm ³	1,000 mm ³	.061 in ³
Cubic foot	ft ³	.02832 m ³	1,728 in ³
Cubic inch	in ³	16.387 cm ³	—
Stere (cubic meter)	ST	1 m ³	1.3 yd ³
Cubic yard	yd ³	.7646 m ³	27 ft ³

WEIGHT

Unit	Abbr	SI/Metric	Imperial
Dram (avdp)	dr (avdp)	1.772 g	.0625 oz
Grain	gr	.0648 g	.00229 oz
Gram	g	.001 kg	.03527 oz
Kilogram	kg	1,000 g	2.2 lb
Milligram	mg	.001 g	.00003 oz
Ounce (avdp)	oz	.0280 kg	.0625 lb
Ounce (troy)	oz tr	.03 kg	1.0971 oz
Pennyweight	dwt	1.555 g	.05486 oz
Pound (avdp)	lb	.454 kg	16 oz
Stone	st	6.35 kg	14 lb
Ton (long or British)	lt	1,016 kg	2,240 lb
Tonne (metric)	mt	1,000 kg	2204.6 lb
Ton (short)	sh t	907.18 kg	2,000 lb

NUMERICAL PREFIXES

1/10	Deci
1/2	Semi, hemi, demi
1	Uni
2	Bi, di
3	Tri, ter
4	Tetra, tetr, quadri
5	Penta, quint
6	Sex, hex, hexa
7	Hept, sept, septo
8	Oct, octo
9	Non, ennea
10	Dec, deca, deka
11	Hendeca, undeca
12	Dodeca
15	Quindecia

SI PREFIXES

Factor	Prefix	Symbol
10 ²⁴	yotta-	Y
10 ²¹	zetta-	Z
10 ¹⁸	exa-	E
10 ¹⁵	peta-	P
10 ¹²	tera-	T
10 ⁹	giga-	G
10 ⁶	mega-	M
10 ³	kilo-	k
10 ²	hecto-	h
10 ¹	deka-	da
10 ⁻¹	deci-	d
10 ⁻²	centi-	c
10 ⁻³	milli-	m
10 ⁻⁶	micro-	μ or r
10 ⁻⁹	nano-	n
10 ⁻¹²	pico-	p
10 ⁻¹⁵	femto-	f
10 ⁻¹⁸	atto-	a
10 ⁻²¹	zepto-	z
10 ⁻²⁴	yocto-	y

CONVERSION FORMULAS

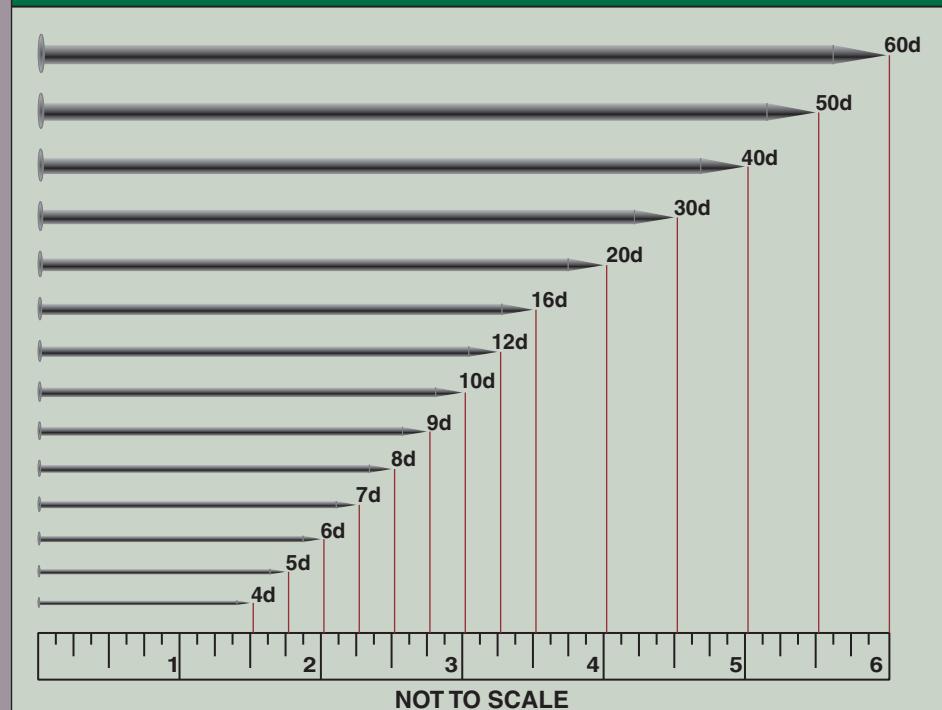
LENGTH	AREA	LIQUID CAPACITY	DRY CAPACITY	WEIGHT				
Centimeters & Inches cm x .394 = in in x 2.54 = cm	Sq. Centimeters & Sq. In. cm ² x .155 = in ² in ² x 6.452 = cm ²	UK & US Gallons UK gal x 1.201 = US gal US gal x .833 = UK gal	Cubic Centimeters & Cubic Inches cm ³ x .061 = in ³ in ³ x 16.387 = cm ³	Grains (gr) & Grams (g) gr x .065 = g g x 15.432 = gr				
Centimeters & Millimeters cm x 10 = mm mm x .1 = cm	Sq. Meters & Sq. Chains (G)* m ² x .0025 = ch ² ch ² x 404.686 = m ²	UK & US Quarts UK qt x 1.201 = US qt US qt x .833 = UK qt	Cubic Inches & Cubic Feet in ³ x .000579 = ft ³ ft ³ x 1,728 = in ³	Drams (avdp)* & Ounces (avdp) dr (avdp) x .062 = oz (avdp) oz (avdp) x 16 = dr (avdp)				
Centimeters & Picas cm x 2.371 = picas picas x .4233 = cm	Sq. Rods & Sq. Chains (G)* rd ² x 625 = ch ² (G) ch ² x 16 = rd ²	UK & US Pints UK pt x 1.201 = US pt US pt x .833 = UK pt	Cubic Feet & Cubic Yards ft ³ x .037 = yd ³ yd ³ x 27 = ft ³	Pennyweight & Grams dwt x 1.5552 = g g x .643 = dwt				
Centimeters & Points cm x 28.4528 = points points x .0351 = cm	Sq. Chains & Acres ch ² (G) x .1 = A A x 10 = ch ² (G)	UK & US Ounces UK oz x .961 = US oz US oz x 1.041 = UK oz	Cubic Meters & Cubic Yards m ³ x 1.308 = yd ³ yd ³ x .765 = m ³	Grams & Ounces (US) g x .035 = oz oz x 28.349 = g				
Millimeters & Inches mm x .0394 = in in x 25.4 = mm	Sq. Chains (G)* & Sq. Feet ch ² (G) x 4,356 = ft ² ft ² x .00023 = ch ² (G)	UK Gallons & Liters UK gal x 4.546 = L L x .220 = UK gal	Cubic Meters & Cubic Feet m ³ x 35.315 = ft ³ ft ³ x .028 = m ³	Ounces (troy) & Grains oz tr x 480 = gr gr x .00208 = oz tr				
Millimeters & Micrometers (Microns) mm x 1,000 = μ μ x .001 = mm	Hectares & Sq. Miles ha x .0039 = mi ² mi ² x 258.999 = ha	UK Quarts & Liters UK qt x 1.137 = L L x .880 = UK qt	Pints & Quarts pt x .5 = qt qt x 2 = pt	Ounces (troy) & Grams oz tr x 31.103 = g g x .032 = oz tr				
Meters & Chains (G) m x .04971 = ch ch x 20.117 = m	Hectares & Acres ha x 2.471 = A A x .405 = ha	UK Pints & Liters UK pt x .568 = L L x 1.760 = UK pt	Quarts & Pecks qt x .125 = pk pk x 8 = qt	Ounces (avdp) & Pounds (avdp) oz (avdp) x .0625 = lb (avdp) lb (avdp) x 16 = oz (avdp)				
Meters & Fathoms m x .547 = fm fm x 1.83 = m	Acres & Sq. Miles A x .00156 = mi ² mi ² x 640 = A	UK Ounces & Milliliters UK oz x 28.413 = ml ml x .035 = UK oz	Pecks (US) & Bushels (US) pk x .25 = bu bu x 4 = pk	Milligrams & Grains mg x .015 = gr gr x 64.799 = mg				
Meters & Feet m x 3.281 = ft ft x .305 = m	Sq. Kilometers & Sq. Miles km ² x .386 = mi ² mi ² x 2.590 = km ²	US Gallons & Liters US gal x 3.785 = L L x .264 = US gal	Bushels (US) & Barrels (US)* bu x .0305 = bbl bbl x 3.281 = bu	Grains & Carats gr x .32399 = c c x 3.0865 = gr				
Meters & Yards m x 1.094 = yd yd x .914 = m	Sq. Meters & Acres m ² x .000247 = A A x 4046.856 = m ²	US Quarts & Liters US qt x .947 = L L x 1.056 = US qt	Bushels (UK) & Bushels (US) bu (US) x .969 = bu (UK) bu (UK) x 1.032 = bu (US)	Grams & Carats (metric) g x 5 = c (metric) c (metric) x .2 = g				
Meters & Furlongs m x .005 = fur fur x 201.17 = m	Sq. Meters & Hectares m ² x .0001 = ha ha x 10,000 = m ²	US Pints & Liters US pt x .473 = L L x 2.113 = US pt	Pounds & Kilograms lb x .454 = kg kg x 2.205 = lb	Milligrams & Carats (metric) mg x .005 = c (metric) c (metric) x 200 = mg				
Chains (G)* & Feet ch x 66 = ft ft x .015 = ch	Sq. Meters & Sq. Feet m ² x 10.764 = ft ² ft ² x .093 = m ²	US Ounces & Liters US oz x .03 = L Liter x 33.8 = US oz	Tons (long) & Pounds (avdp) lt x 2,240 = lbs (avdp) lbs (avdp) x .0004464 = lt	Tons (short) & Pounds (avdp) sht x 2,000 = lbs (avdp) lbs (avdp) x .0005 = sht				
Chains (G)* & Rods ch x 4 = rd rd x .25 = ch	Sq. Meters & Sq. Yards m ² x 1.196 = yd ² yd ² x .836 = m ²	Gills (US) & Ounces (US) gi x 4 = oz oz x .25 = gi	Tonnes (metric) & Pounds (avdp) t x 2204.62 = lbs (avdp) lbs (avdp) x .0004536 = t	Kilometers & Yards km x 1093.6 = yd yd x .00091 = km				
Chains (G)* & Yards ch x 22 = yd yd x .455 = ch	Sq. Meters & Sq. Rods m ² x .03954 = rd ² rd ² x 25.293 = m ²	Gills (US) & Cubic Centimeters gi x 118.29 = cc cc x .00845 = gi	* A barrel is not the same container as a steel drum, which typically holds 55 gallons (US). Barrels come in different sizes based on their contents, as defined by various statutes. Oil = 42 gal Beer = 31 gal (US) Beer = 50 liters (Europe) Dry Goods = 7,056 in ³ Cranberries = 5,826 in ³ Flour = 196 lbs. Cornmeal = 200 lbs. Cement = 376 lbs. Lime = 280 lbs.	*avdp = avoirdupois (from French), meaning "goods of weight"				
Fathoms & Feet fa x 6 = ft ft x .167 = fa	Sq. Yards & Sq. Feet yd ² x 9 = ft ² ft ² x .1111 = yd ²	Gills (UK) & Cubic Centimeters gi x 142.065 = cc cc x .00704 = gi						
Kilometers & Feet km x 3280.84 = ft ft x (3.048 x 10 ⁻⁴) = km	*(G) = Gunter's or surveyor's chain							
Kilometers & Yards km x 1093.6 = yd yd x .00091 = km	(G) = Gunter's or surveyor's chain							
Kilometers & Statute Miles km x .621 = mi mi x 1.609 = km	(G) = Gunter's or surveyor's chain							
Kilometers & Nautical Miles km x .540 = n mi n mi x 1.852 = km	(G) = Gunter's or surveyor's chain							
Nautical Miles & Statute Miles n mi x 1.15 = s mi s mi x .869 = n mi	(G) = Gunter's or surveyor's chain							
KITCHEN LIQUID MEASURES								
1 gal	4 qt	8 pt	16 cups	128 fl oz	3.79L			
½ gal	2 qt	4 pt	8 cups	64 fl oz	1.89L			
¼ gal	1 qt	2 pt	4 cups	32 fl oz	.95L			
	½ qt	1 pt	2 cups	16 fl oz	.47L			
	¼ qt	½ pt	1 cup	8 fl oz	.24L			
			½ cup	4 fl oz	.12L	8 Tbs	24 tsp	
			¼ cup	2 fl oz	.06L	4 Tbs	12 tsp	
			½ cup	1 fl oz	.03L	2 Tbs	6 tsp	
			½ cup	1/8 cup	.015L	1 Tbs	3 tsp	
				½ fl oz	.015L			
KITCHEN DRY MEASURES								
1 cup					8 fl oz	16 Tbs	48 tsp	237 ml
¾ cup					6 fl oz	12 Tbs	36 tsp	177 ml
⅔ cup					5 ½ fl oz	10 ½ Tbs	32 tsp	158 ml
½ cup					4 fl oz	8 Tbs	24 tsp	118 ml
⅓ cup					2 ½ fl oz	5 ½ Tbs	16 tsp	79 ml
⅔ cup					2 fl oz	4 Tbs	12 tsp	59 ml
⅕ cup					1 fl oz	2 Tbs	6 tsp	30 ml
⅛ cup					½ fl oz	1 Tbs	3 tsp	15 ml
⅛ cup					½ fl oz	½ Tbs	1 tsp	5 ml

SHAPES & SIZES

LUMBER SIZES

Nominal inches	Actual (dry) inches	Actual (green) inches		
	mm	mm		
THICKNESS				
1	3/4	19	25/32	20
1 1/4	1	25	1 1/32	26
1 1/2	1 1/4	32	1 9/32	33
2	1 1/2	38	1 9/16	40
2 1/2	2	51	2 1/16	52
3	2 1/2	64	2 9/16	65
3 1/2	3	76	3 1/16	78
4	3 1/2	89	3 9/16	90
4 1/2	4	102	4 1/16	103
6	5 1/2	140	5 9/16	141
8	7 1/2	191	7 9/16	194
WIDTH				
2	1 1/2	38	1 9/16	40
3	2 1/2	64	2 9/16	65
4	3 1/2	89	3 9/16	90
5	4 1/2	114	4 5/8	117
6	5 1/2	140	5 5/8	143
7	6 1/2	165	6 5/8	168
8	7 1/4	184	7 1/2	190
9	8 1/4	210	8 1/2	216
10	9 1/4	235	9 1/2	241
11	10 1/4	260	10 1/2	267
12	11 1/4	286	11 1/2	292
14	13 1/4	337	13 1/2	343
16	15 1/4	387	15 1/2	394

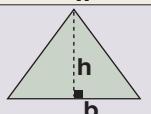
COMMON NAILS



GEOMETRY

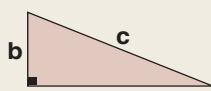


Rectangle
Area (A) = Width (w) x Height (h)



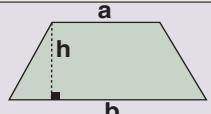
Triangle

Area (A) = $\frac{1}{2}$ Base (b) x Height (h)



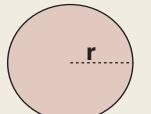
Pythagorean Theorem:

If a right triangle has hypotenuse (c) and sides (a) and (b), then:
 $c^2 = a^2 + b^2$



Trapezoid

Area (A) = $\frac{(a+b) \times h}{2}$

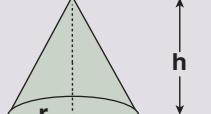


Circle

Area (A) = πr^2

Circumference (C) = $2\pi r$

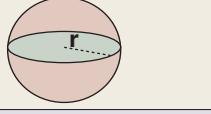
$\pi = 3.1416$ r = radius



Cone

Volume (V) = $\frac{\pi r^2 h}{3}$

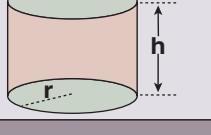
Area of curved surface:
 $A = \pi r \sqrt{r^2 + h^2}$



Sphere

Volume (V) = $\frac{4\pi r^3}{3}$

Surface Area: $A = 4\pi r^2$

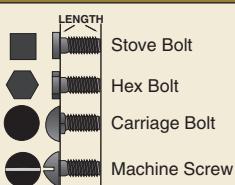


Right Cylinder

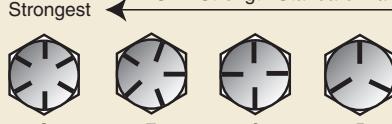
Volume (V) = $\pi r^2 h$

Lateral surface area (A) = $2\pi r h$

BOLT GRADES



Strongest ← SAE Strength Standard Markings → Weakest



NOTE: There is no "4" grade.

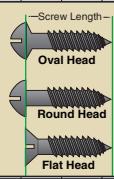
STANDARD WOOD SCREWS

LENGTH IN INCHES

Gauge	Shank	Screw	Head	1/4	5/8	1/2	5/8	3/4	7/8	1	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2	2 3/4	3	3 1/4	4	4 1/2	5	
0	1/16	1/64	1/3																				
1	5/64	1/32	1/32																				
2	3/32	1/32	3/64																				
3	7/64	3/64	1/16																				
4	7/64	3/64	1/16																				
5	1/8	1/16	5/64																				
6	1/8	1/16	5/64																				
7	5/32	1/16	3/32																				
8	11/64	5/64	3/32																				
9	3/16	5/64	7/64																				
10	3/16	3/32	7/64																				
11	13/64	3/32	1/8																				
12	7/32	7/64	1/8																				
14	1/4	7/64	9/64																				
16	17/64	9/64	5/32																				
18	19/64	9/64	3/16																				
20	21/64	11/64	13/64																				
24	3/8	3/16	7/32																				

Common Sizes

Some Availability



FAHRENHEIT-TO-CELSIUS CONVERSION

F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C
-50	-45.6	-26	-32.2	-2	-18.9	22	-5.5	46	7.8	70	21.1	94	34.4	118	47.8	142	61.1	166	74.4	190	87.8		
-49	-45.0	-25	-31.7	-1	-18.3	23	-5.0	47	8.3	71	21.7	95	35.0	119	48.3	143	61.7	167	75.0	191	88.3		
-48	-44.4	-24	-31.1	0	-17.8	24	-4.4	48	8.9	72	22.2	96	35.5	120	48.9	144	62.2	168	75.5	192	88.9		
-47	-43.9	-23	-30.6	1	-17.2	25	-3.9	49	9.4	73	22.8	97	36.1	121	49.4	145	62.8	169	76.1	193	89.4		
-46	-43.3	-22	-30.0	2	-16.7	26	-3.3	50	10.0	74	23.3	98	36.7	122	50.0	146	63.3	170	76.7	194	90.0		
-45	-42.8	-21	-29.4	3	-16.1	27	-2.8	51	10.5	75	23.9	99	37.2	123	50.5	147	63.9	171	77.2	195	90.5		
-44	-42.2	-20	-28.9	4	-15.5	28	-2.2	52	11.1	76	24.4	100	37.8	124	51.1	148	64.4	172	77.8	196	91.1		
-43	-41.7	-19	-28.3	5	-15.0	29	-1.7	53	11.7	77	25.0	101	38.3	125	51.7	149	65.0	173	78.3	197	91.7		
-42	-41.1	-18	-27.8	6	-14.4	30	-1.1	54	12.2	78	25.5	102	38.9	126	52.2	150	65.5	174	78.9	198	92.2		
-41	-40.6	-17	-27.2	7	-13.9	31	-0.5	55	12.8	79	26.1	103	39.4	127	52.8	151	66.1	175	79.4	199	92.8		
-40	-40.0	-16	-26.7	8	-13.3	32	0.0	56	13.3	80	26.7	104	40.0	128	53.3	152	66.7	176	80.0	200	93.3		
-39	-39.4	-15	-26.1	9	-12.8	33	0.5	57	13.9	81	27.2	105	40.5	129	53.9	153	67.2	177	80.5	201	93.9		
-38	-38.9	-14	-25.6	10	-12.2	34	1.1	58	14.4	82	27.8	106	41.1	130	54.4	154	67.8	178	81.1	202	94.4		
-37	-38.3	-13	-25.0	11	-11.6	35	1.7	59	15.0	83	28.3	107	41.7	131	55.0	155	68.3	179	81.7	203	95.0		
-36	-37.8	-12	-24.4	12	-11.1	36	2.2	60	15.5	84	28.9	108	42.2	132	55.5	156	68.9	180	82.2	204	95.5		
-35	-37.2	-11	-23.9	13	-10.5	37	2.8	61	16.1	85	29.4	109	42.8	133	56.1	157	69.4	181	82.8	205	96.1		
-34	-36.7	-10	-23.3	14	-10.0	38	3.3	62	16.7	86	30.0	110	43.3	134	56.7	158	70.0	182	83.3	206	96.7		
-33	-36.1	-9	-22.8	15	-9.4	39	3.9	63	17.2	87	30.5	111	43.9	135	57.2	159	70.5	183	83.9	207	97.2		
-32	-35.6	-8	-22.2	16	-8.9	40	4.4	64	17.8	88	31.1	112	44.4	136	57.8	160	71.1	184	84.4	208	97.8		
-31	-35.0	-7	-21.7	17	-8.3	41	5.0	65	18.3	89	31.7	113	45.0	137	58.3	161	71.7	185	85.0	209	98.3		
-30	-34.4	-6	-21.1	18	-7.8	42	5.5	66	18.9	90	32.2	114	45.5	138	58.9	162	72.2	186	85.5	210	98.9		
-29	-33.9	-5	-20.6	19	-7.2	43	6.1	67	19.4	91	32.8	115	46.1	139	59.4	163	72.8	187	86.1	211	99.4		
-28	-33.3	-4	-20.0	20	-6.7	44	6.7	68	20.0	92	33.3	116	46.7	140	60.0	164	73.3	188	86.7	212	100.0		
-27	-32.8	-3	-19.4	21	-6.1	45	7.2	69	20.5	93	33.9	117	47.2	141	60.5	165	73.9	189	87.2				

$$(T_F - 32)/1.8 = T_C \quad T_C \times 1.8 + 32 = T_F$$

WIND CHILL INDEX (°F) REVISED 2001

0 mph	40°	35°	30°	25°	20°	15°	10°	5°	0°	-5°	-10°	-15°	-20°	-25°	-30°	-35°	-40°	-45°
5 mph	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10 mph	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15 mph	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20 mph	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25 mph	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30 mph	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35 mph	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40 mph	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45 mph	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50 mph	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95

WINDCHILL (°F) = $35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275TV^{0.16}$ V = WIND SPEED (mph) T (°F) = AIR TEMP.

SAFFIR-SIMPSON HURRICANE SCALE

CAT.	IN. MERCURY MILLIBARS	WIND/KPH	WIND MPH	WIND/KNOTS SURGE/FT	DAMAGE LIKELY
1	> 28.94	> 980	119-153	74-95	64-82
2	28.50-28.91	965-979	154-177	96-110	83-95
3	27.91-28.47	945-964	178-209	111-130	96-113
4	27.17-27.88	920-944	210-249	131-155	114-135
5	< 27.17	< 920	> 249	> 155	> 135

SUN TANNING INDEX SKIN PROTECTION FACTOR # TO USE		
TYPE	SKIN REACTION	EXAMPLES
1	Tans little or not at all, always burns easily & severely, then peels	People with fair skin, blue eyes, freckles, white, unexposed skin
2	Usually burns easily & severely; tans minimally & lightly, also peels	People with fair skin, blue or hazel eyes, blonde or red hair
3	Burns moderately, gains average tan	Average caucasian
4	Burns minimally, tans easily & above average with each exposure	People with light brown skin, dark brown hair, dark eyes
5	Rarely burns, tans easily & substantially	Brown-skinned persons
6	Tans profusely & never burns	Black-skinned persons

FUJITA-PEARSON TORNADO SCALE REVISED 2007

CLASS	KPH	MPH	DAMAGE LIKELY
F 0	64 - 116	40 - 72	light
F 1	117 - 180	73 - 112	moderate
F 2	181 - 253	113 - 157	considerable
F 3	254 - 332	158 - 207	severe
F 4	333 - 419	208 - 260	devastating
F 5	420 - 512	261 - 318	incredible

ULTRAVIOLET INDEX

VALUE	EXPOSURE
0 - 2	Minimal
3 - 4	Low
5 - 6	Moderate
7 - 9	High
> 10	Very High



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