

## Area & Perimeter

**A** = Area of a shape or polygon

**P** = Perimeter

**L** = length **w** = width

**h** = height **b** = base

**C** = Circumference

**d** = diameter **r** = radius

$\pi$  is  $\pi$ , 3.1416

**Square**

**A** =  $L \times L$  **or** **A** =  $L^2$

**P** =  $L + L + L + L$

**or** **P** =  $4L$



**Rectangle**

**A** =  $L \times w$

**P** =  $L + L + w + w$

**or** **P** =  $2(L + w)$



**Parallelogram**

**A** =  $L \times h$

**P** =  $L + L + w + w$

**or** **P** =  $2(L + w)$



**Trapezoid**

**A** =  $[(L_1 + L_2) / 2] \times w$

**P** =  $L_1 + L_2 + 2w$



**Triangle**

**A** =  $\frac{1}{2} b \times h$

**or** **A** =  $(b \times h) / 2$

**P** =  $a + b + c$



**Circle**

**A** =  $r^2 \times \pi$  **or** **A** =  $r^2 \times 3.1416$

**C** =  $2r \times \pi$  **or** **C** =  $d \times 3.1416$



If dimensions of a shape are measured in feet, calculate acres by dividing the area (square feet – sq ft or ft<sup>2</sup>) by 43,560 (ft<sup>2</sup>/A).

### Dimensions of a Square or Circle — Acres

Square	Acres	Circle
length of side	diameter, radius	
L = 209'	1 A	d = 236' r = 118'
L = 295'	2 A	d = 333' r = 167'
L = 466'	5 A	d = 527' r = 264'
L = 660'	10 A	d = 745' r = 373'
L = 933'	20 A	d = 1053' r = 527'

To find the length of **c**, the hypotenuse or the longest side of a right triangle, use **c**<sup>2</sup> = (a<sup>2</sup> + b<sup>2</sup>); length is the square root of c<sup>2</sup>.



**How to lay out a right angle for field or fence corners:** A triangle with sides that are multiples of 3, 4 and 5 will always have right angle where the sides measuring multiples of 3 and 4 meet.

## Equivalents & Conversions

**Weight**

1 oz = 28.4 g

16 oz = 1 lb

2000 lb = 1 ton

20 cwt = 1 ton

1 lb = 0.45 kg

1 kg = 1000 g = 1,000,000 mg

1 kg = 2.2 lb

1000 kg = 1 metric ton = 2204 lb

1 gal = 8.345 lb (water)

**Length**

1 in = 2.54 cm

12 in = 1 ft = 30.48 cm

36 in = 3 ft = 1 yd

1 yd = 0.9144 m

1 m = 39.37 in = 1.094 yd

1 mi = 5280 ft = 1760 yd = 1.609 km

1 km = 1000 m = 0.6217 mi

$\frac{1}{4}$  mi = 1320 feet

1 rod = 16.5 ft = 5.5 yd

1 vara = 33.3 in = 0.93 yd = 0.85 m

**Area - Square Measure**

1 sq ft (ft<sup>2</sup>) = 144 sq in (in<sup>2</sup>)

1 yd<sup>2</sup> = 9 ft<sup>2</sup> = 0.836 m<sup>2</sup>

1 A = 43,560 ft<sup>2</sup>

1 A = 160 rod<sup>2</sup>

1 A = 0.42 ha

1 ha = 10,000 m<sup>2</sup> = 2.47 A

1 *manzana* = 10,000 *varas*<sup>2</sup> = 1.77 A

1 sq mi (1 section) = 640 A

1 sq mi = 259 ha

**Volumes - Cubic Measure**

1 oz = 30 ml

1 pt = 16 oz

1 qt = 32 oz = 2 pt

1 cm<sup>3</sup> = 1 ml

1 l = 1000 ml (or cm<sup>3</sup>) = 1.06 qt

1 qt = 0.946 l

1 gal = 4 qt = 8 pt = 128 oz

1 gal (liquid) = 231 in<sup>3</sup> = 3.785 l

1 gal (dry) = 268 in<sup>3</sup>

1 ft<sup>3</sup> = 728 in<sup>3</sup> = 7.48 gal (liquid)

1 ft<sup>3</sup> = 28.3 l

1 bu = 1.24 ft<sup>3</sup> = 35.2 l

1 yd<sup>3</sup> = 27 ft<sup>3</sup> = 21.7 bu = 765 l

1 ac in of water = 27154 gal = 3630 ft<sup>3</sup>

1 cord (wood) = 128 ft<sup>3</sup> (4' x 4' x 8')

## Equivalents & Conversion Rates

**Dilution Liquid Measure**

per 100 gallons

per gallon

1/4 pt

1/4 tsp

1 pt

1 tsp

1 qt

2 tsp

1 gal

2.5 Tbsp (1 fl oz)

2 gal

5 Tbsp (2.5 fl oz)

4 gal

1/3 pt (5 fl oz)

10 gal

3/4 pt (13 fl oz)

**Dilution Dry Measure**

per 100 gallons

per gallon

1/2 lb

1/12 oz

1 lb

1/6 oz

2 lb

1/3 oz

3 lb

1/2 oz

5 lb

3/4 oz

**Temperature Conversions**

°F (Fahrenheit) = (°C x 1.8) + 32

°C (Celsius) = (°F - 32) x 0.56

°C	temperature	°F
-40	(same)	-40
0	water freezes	32
16	(reciprocal)	61
20-25	room temp	68-77
37	human body	99
100	water boils	212

**Rates**

1 oz/ft<sup>3</sup> = 2773 lb/A

1 oz/yd<sup>3</sup> = 303 lb/A

1 oz/100 ft<sup>3</sup> = 27 lb/A

1 lb/100 ft<sup>3</sup> = 436 lb/A

1 pt/1000 ft<sup>3</sup> = 5.4 gpa

2.3 gal/1000 ft<sup>3</sup> = 100 gpa

1 qt/100 ft<sup>3</sup> = 100 gpm

1 ac in/hr = 450 gpm

1 ppm = 0.013 fl oz/100 gal (water)

1 ppm = 1 ml/l

1 % solution = 1.33 fl oz/gal

1 ft<sup>3</sup>/sec = about 450 gal/min

1 ft<sup>3</sup>/sec = 1 ac in/hr

1 ft/sec (fps) = 1.47 mph

1 fps = 22/15 mph

55 mph = 88 km/h

100 lb/A = 2.5 lb/1000 ft<sup>2</sup>

**Equivalents**

1 bu (ear corn) = 2.5 ft<sup>3</sup>

1 bu (shelled corn) = 1.2 ft<sup>3</sup>

1 ton (corn, sorghum, rye) = 35.7 bu

1 ton (wheat, soybeans) = 33.3 bu

1 cup dry fertilizer -- about  $\frac{1}{2}$  lb

1 qt dry fertilizer -- about  $1\frac{1}{4}$  lb

1 qt dolomite -- just over  $\frac{1}{2}$  lb

**Harvest Losses**

1 ear corn per 1/1000 A = 1 bu/A

20 kernels corn per 10 ft<sup>2</sup> = 1 bu/A

40 soybeans / 10 ft<sup>2</sup> = 1 bu/A

10 peanuts / 10 ft<sup>2</sup> = 140-150 lb/A

$\frac{3}{4}$  oz cotton per 1/100 A = 5 lb/A

Inches in Row	Thousands of Plants at Row Widths of:								Plants / 100'
	8"	12"	18"	24"	28"	32"	36"	40"	
1"	784	523	349	261	224	196	174	157	1200
2"	392	261	174	131	112	98	88	79	600
4"	196	131	88	66	56	49	44	40	300
6"	131	88	59	44	38	33	29	27	200
8"	98	66	44	33	28	25	22	20	150
10"	79	53	35	27	23	20	18	16	120
12"	66	44	30	22	19	17	15	14	100
18"	44	29	20	15	12	11	10	9	67
24"	33	22	15	11	10	9	8	7	50

(rounded up to the nearest 1000)

**Average Person's Reaction Time**

tractor speed	stopping distance	distance traveled
2 mph	6 ft	1.5 ft
5 mph	12 ft	3.7 ft
10 mph	30 ft	7.3 ft
15 mph	44 ft	11.0 ft
20 mph	64 ft	14.3 ft

**100 Bedding Plants**

spaced at:	will cover:
4" x 4"	11 sq ft (ft <sup>2</sup> )
6" x 6"	25 sq ft (ft <sup>2</sup> )
8" x 8"	44 sq ft (ft <sup>2</sup> )
10" x 10"	70 sq ft (ft <sup>2</sup> )
12" x 12"	100 sq ft (ft <sup>2</sup> )
15" x 15"	156 sq ft (ft <sup>2</sup> )