CONSTRUCTION MASTER® PRO

Pocket Reference Guide

For Models:

4065 v3.1 **Construction Master Pro**
4080 v3.1 **Construction Master Pro Trig**

CALCULATED INDUSTRIES®

CONSTRUCTION MASTER® PRO v3.1

The *Construction Master Pro* calculators help you save time, cut costly errors and build *like a pro!*

Quickly Solve:

- *Feet-Inches-Fractions, Yards, Metric Dimensional Problems and Conversions*
- *Problems Involving All Fractions – 1/2 through 1/64ths!*
- *Areas, Volumes and Weights*
- *Column/Cone Area and Volume*
- *Blocks/Bricks, Drywall and Footings (NOT AVAILABLE ON TRIG MODEL #4080)*
- *Circle/Arc Calculations*
- *Common, Hip/Valley, Jack Rafter Lengths (regular and irregular) and Cut Angles*
- *Rake-Wall Solutions*
- *Roofing Materials*
- *Stair Layout Solutions*
- *Trig Keys (TRIG MODEL #4080 ONLY)*

TABLE OF CONTENTS

KEY DEFINITIONS

Basic Function Keys

+ − × ÷ =	Arithmetic operation keys.
%	Four-function (+, –, x, ÷) percent key.
0 – 9 and •	Keys used for entering numbers.
Off	***Off Key*** — Turns all power off, clearing all non-permanent registers.
On/C	***On/Clear Key*** — Turns on power. Pressing once clears the display. Pressing twice clears all temporary values.
Conv	***Convert Key*** — Used with the dimensional keys to convert between dimensions or with other keys to access special functions.
Stor	***Store Key*** — Used for storing values.
Rcl	***Recall Key*** — Recalls stored values.

Unit Keys

Yds	Yards
Feet	Feet
Inch	Inch
/	Fraction Bar
m	Meters
Conv 7	Centimeters
Conv 9	Millimeters
Conv 2	Acres

Length, Width and Height Keys (NOT AVAILABLE ON TRIG MODEL #4080)

Length	Enters length for calculation of area or volume.
Width	Calculates area, square-up and perimeter.
Height	Calculates volume, wall area and total room area.

Circle/Arc Keys

Circ	***Circle*** — Calculates circle area and circumference.
Arc	Calculates Arc Length or Degree, chord length, segment area, pie slice area, segment rise, and length of arched segment wall studs.

Conv Arc — ***Radius*** — Enters or calculates circle radius.

Construction Project Keys

Conv Length — ***Blocks/Bricks*** — Finds the number of blocks or bricks for a given area and stored block/brick size.

Stor 4 — *Stores block or brick size (default: 128 Square Inches area and 16 Inches length).*

Conv 8 — ***Board Feet*** — Enters or converts cubic values to Board Feet.

Comp Miter — ***Compound Miter*** — Calculates (based on entered spring and wall corner angle) miter angle, and bevel angle for cutting crown moulding.

Stor Comp Miter —*Stores value other than default spring (crown) angle of 45°.*

Conv Circ — ***Column/Cone*** — Calculates the volume and surface area of a Column and/or Cone.

Conv **Height** — ***Drywall*** — Calculates number of 4 x 8, 4 x 9 and 4 x 12 drywall sheets based on entered or calculated area.

Conv **Width** — ***Footing*** — Finds quantity of concrete, based on entered wall length and stored footing area.

Sfor **6** — *Stores footing area (default: 264 Square Inches).*

Conv **Diag** — ***Roof*** — Calculates roof area, number of roof squares and bundles, and number of 4 x 8 sheets based on an entered or calculated plan area.

Conv **Run** — ***Polygon*** — Calculates full angle, bi-sect angle, side length, perimeter and area based on entered radius and number of sides.

Conv **5** — ***Studs*** — Calculates number of studs based on stored On-center spacing and entered length of wall.

Trigonometric Keys (TRIG MODEL #4080)

Sine — Finds the sine of a degree or undimensioned value.

Conv **Sine** — ***Arcsine (sin^{-1})*** — Gives the angle for the Sine value.

Cos — Finds the Cosine.

Conv **Cos** — ***Arccosine (cos^{-1})*** — Gives the angle for the Cosine value.

Tan — Finds the Tangent.

Conv **Tan** — ***Arctangent (tan^{-1})*** — Gives the angle for the Tangent value.

Right Triangle/Roof Framing Keys

Pitch — Enters or calculates the slope (amount of "Rise" over 12" of "Run".

Conv **Pitch** — ***Slope*** — Enters a Pitch ratio, or slope (e.g., • 5 8 3 **Conv** **Pitch**).

Rise — Enters or calculates the vertical leg of a right triangle.

Conv **Rise** — ***Rake-Wall*** — Finds the stud sizes based on entered right triangle values.

Run Enters or calculates the horizontal leg of a right triangle.

Diag ***Diagonal*** — Enters or calculates the Diagonal leg, or Common rafter.

Hip/V ***Hip/Valley*** — Calculates length of the regular or irregular Hip/Valley rafter.

Conv **Hip/V** Enters *irregular* pitch used to calculate lengths of the irregular Hip/Valley and Jack rafters.

Jack Calculates Jack rafter lengths on the *regular*-pitched roof side.

Conv **Jack** Calculates Jack rafter lengths on the *irregular*-pitched roof side.

Stor **5** — *Stores On-center spacing value (default: 16") for rafters and Rake-Walls. Also used for studs.*

Stair Layout Key

Stair

Given rise and/or run and stored variables, calculates or displays:

Press	Result
1	Riser Height
2	Number of Risers
3	Riser Overage/ Underage
4	Tread Width
5	Number of Treads
6	Tread Overage/ Underage
7	Stairwell Opening
8	Stringer Length
9	Angle of Incline
10	Stored or Calculated Run
11	Stored or Calculated Rise
12	Stored Desired Riser Height
13	Stored Desired Tread Width
14	Stored Headroom
15	Stored Floor Thickness

Conv Stair — ***Riser Limited*** — Recalculates *Riser Height* and other stair values if you're limited by local code. The calculated Riser Height will never exceed the *stored* Desired Riser Height.

STAIR DEFAULT VALUES

- 7-1/2" Desired Riser Height
- 10" Desired Tread Width
- 10" Floor Thickness
- 6'8" Headroom

Customizable Stair Settings

Stor 7 — Stores Desired Riser Height.

Stor 9 — Stores Desired Tread Width.

Stor 8 — Stores Floor Thickness.

Conv Stor Stor Stor Stor — Sets Headroom. See large User's Guide, Preference Settings, for details.

Miscellaneous Functions

←	Backspace Key
Rcl =	Paperless Tape
Conv Stor	Preference Settings
Conv ÷	(1/x) Reciprocal
Conv ×	Clear All
Conv −	(+/–) Toggle
Conv +	Pi (π) 3.141593
Conv •	Converts between D:M:S and Decimal Degrees.
Conv %	x^2
Conv ←	($\sqrt{x}$) Square Root
Conv /	Exponential Notation ($x10^y$)
Conv 0	Total Cost (based on entry of per unit cost)
Stor 0	Stores Weight per Volume
Conv 6	Tons
Conv 4	Pounds
Conv 3	Metric Tons
Conv 1	Kilograms
M+	Memory +
Conv M+	(M–) Memory Minus

Stor 1	(M1) Storage Register
Stor 2	(M2) Storage Register
Stor 3	(M3) Storage Register
Rcl Rcl	Recall and Clear M+
Rcl M+, 1, 2 or 3	Recall M+, M1, M2 or M3

ENTERING DIMENSIONS

Entering Linear Dimensions

Examples of entering Linear Dimensions:

DIMENSION	KEYSTROKE
Clear calculator	On/C
5 Feet 1-1/2 Inch	5 Feet 1 Inch 1 / 2*
Clear calculator	On/C
5 Yards	5 Yds
Clear calculator	On/C
17.5 Meters	1 7 • 5 m
Clear calculator	On/C
100 Centimeters	1 0 0 Conv 7
Clear calculator	On/C
500 Millimeters	5 0 0 Conv 9

**If a denominator is not entered, the fractional setting value is used.*

Entering Square/Cubic Dimensions

Examples of entering Square and Cubic Dimensions:

KEYSTROKE	DISPLAY
On/C On/C	**0.**

Enter numeric value and press desired unit key once to label value as "Linear:"

1 0 0 Feet	**100 FEET**

KEYSTROKE	DISPLAY
On/C On/C	**0.**

Enter numeric value and press desired unit key twice to label value as "Square:"

1 0 0 Feet Feet	**100 SQ FEET**

KEYSTROKE	DISPLAY
On/C On/C	**0.**

Enter numeric value and press desired unit key three times to label value as "Cubic:"

1 0 0 Feet Feet Feet	**100 CU FEET**

Note: If you pass the desired dimensional format, keep on pressing the dimensional unit key until the desired result is displayed again.

Note: Feet-Inches format cannot be used to enter Square or Cubic values.

EXAMPLES

Adding and Subtracting Strings of Dimensions

Add the following measurements:

- 6 Feet 2-1/2 Inches
- 11 Feet 5-1/4 Inches
- 18.25 Inches

Then subtract 2-1/8 Inches.

KEYSTROKE	DISPLAY
6 Feet 2 Inch 1 / 2 +	
1 1 Feet 5 Inch 1 / 4 +	
1 8 • 2 5 Inch −	19 FEET 2 INCH
− 2 Inch 1 / 8 −	18 FEET 11-7/8 INCH

Rectangular Area and Volume*

Find the area and volume:

- Length: 20 Feet 6-1/2 Inches
- Width: 12 Feet 8-1/2 Inches
- Height: 18 Inches

KEYSTROKE	DISPLAY
2 0 Feet 6 Inch 1 / 2 Length	
1 2 Feet 8 Inch 1 / 2 Width Width	
	AREA 261.0503 SQ FEET
1 8 Inch Height Height	VOL 14.5028 CU YD

**If using the Trig model (#4080), multiply (LxWxH) in Feet-Inches-Fractions.*

Entering Square and Cubic and Adding a Waste Allowance

Add a 10% waste allowance to 55 Square Feet. Then add a 20% waste allowance to 150 Cubic Feet:

KEYSTROKE	DISPLAY
55 Feet Feet + 10 %	60.5 SQ FEET
150 Feet Feet Feet + 20 %	180. CU FEET

Using Multi-Function Height Key (NOT AVAILABLE ON TRIG MODEL #4080)

Find the volume, wall area and total room area of a room measuring 15' x 20'. The room is 8' tall.

KEYSTROKE	DISPLAY
On/C On/C	0.
15 Feet Length	LNTH 15 FEET 0 INCH
20 Feet Width	WDTH 20 FEET 0 INCH
8 Feet Height	HGHT 8 FEET 0 INCH
Height	VOL 2400. CU FEET
Height	WALL 560. SQ FEET
Height	ROOM 860. SQ FEET

Dividing Dimensions

Divide 15 Feet 3-3/4 Inches into thirds (divide by 3):

KEYSTROKE	DISPLAY
15 Feet 3 Inch 3 / 4 ÷ 3 =	5 FEET 1-1/4 INCH

Linear Conversions

Convert 10 Feet 6 Inches to other dimensions, including Metric:

KEYSTROKE	DISPLAY
10 Feet 6 Inch	10 FEET 6 INCH
Conv Feet*	10.5 FEET
Conv Inch*	126. INCH
Conv Yds	3.5 YD
Conv m	3.200 M
Conv 9 *(mm)*	3200.4 MM
Conv 7 *(cm)*	320.04 CM

**Repeated presses of Feet or Inch will toggle between Feet-Inch-Fractions and Decimal Feet or Inches.*

Square and Cubic Conversions

Convert 14 Square Feet to Square Yards:

KEYSTROKE	DISPLAY
1 4 Feet Feet	**14 SQ FEET**
Conv Yds	**1.555556 SQ YD**

Convert 12 Cubic Feet to Cubic Yards:

KEYSTROKE	DISPLAY
1 2 Feet Feet Feet	**12 CU FEET**
Conv Yds	**0.444444 CU YD**

Blocks (NOT AVAILABLE ON TRIG MODEL #4080)

How many blocks (block size 8" x 16") will you need to build a retaining wall measuring 8' x 22'?

KEYSTROKE	DISPLAY
On/C On/C	**0.**
8 Feet × 2 2 Feet =	**176. SQ FEET**
Conv Length *(Blocks)*	**BLKS 198.**

Board Feet and Cost

Find the total Board Feet for the following boards: 2 x 4 x 16, 2 x 10 x 18 and 2 x 12 x 20. What is the total cost at $275 per MBM?

(Cont'd)

(Cont'd)

KEYSTROKE	DISPLAY
On/C On/C	0.
2 × 4 × 1 6 Conv 8 M+	BDFT 10.66667 M
2 × 1 0 × 1 8 Conv 8 M+	BDFT 30. M
2 × 1 2 × 2 0 Conv 8 M+	BDFT 40. M
Rcl Rcl	BDFT 80.66667
× 2 7 5 Conv 0 *(Cost)*	$22.18

Circle Area and Circumference

Find the area and circumference of a circle with a diameter of 25 Inches:

KEYSTROKE	DISPLAY
On/C On/C	0.
2 5 Inch Circ	DIA 25 INCH
Circ	AREA 490.8739 SQ INCH
Circ	CIRC 78-9/16 INCH

Circle/Arc Properties

Find Arc properties given a 5-foot diameter and an Arc length of 3 Feet 3 Inches:

KEYSTROKE	DISPLAY
1. Enter Circle diameter and Arc length:	
On/C On/C	0.
5 Feet Circ	DIA 5 FEET 0 INCH
3 Feet 3 Inch Arc	ARC 3 FEET 3 INCH

2. Find Degree of Arc, Chord Length, Segment Area, Pie Slice Area and Segment Rise:

Arc	**ARC 74.48°**
Arc	**CORD 3 FEET 0-5/16 INCH**
Arc	**SEG 1.051381 SQ FEET**
Arc	**PIE 4.0625 SQ FEET**
Arc	**RISE 0 FEET 6-1/8 INCH***

**You may also find arched segment wall stud sizes, based on the stored o.c. After the segment rise, the calculator will display the stored o.c., then calculate the stud sizes with each successive press of the Arc key. See large User's Guide for example.*

Compound Miter

If the wall corner angle is 60° and the spring (crown) angle is 38°, find the miter angle and bevel angle for installing crown moulding:

KEYSTROKE	DISPLAY
On/C On/C	**0.**
3 8 Stor Comp Miter	**SPRG STORED 38.00°**
6 0 Comp Miter	**MITR 46.84°**
Comp Miter	**BEVL 43.03°**
Comp Miter	**SPRG STORED 38.00°**
Comp Miter	**CRNR 60.00°**

Concrete Columns

Find the total Cubic Yards and Tons of concrete (using 1.5 tons per cu. yd) required for three (3) columns, each with a diameter of 5 Feet 2-3/4 Inches and a height of 10 Feet:

KEYSTROKE	DISPLAY
1. Recall stored Weight per Volume:	
On/C On/C	**0.**
Rcl 0	STORED **1.5 Ton Per CU YD**
2. Enter diameter:	
5 Feet 2 Inch 3 / 4 Circ	**DIA 5 FEET 2-3/4 INCH**
3. Find total volume:	
1 0 Feet Height Conv Circ *(Column/Cone)*	**COL 214.7607 CU FEET**
Conv Yds	**7.954101 CU YD**
× 3 =	**23.8623 CU YD**
4. Convert to tons:	
Conv 6 *(ton)*	**35.79345 Ton**

Trig Model (#4080) Users: *As this model does not have a* Height *key, you must enter the height using the* Rise *key.*

Concrete Footings (NOT AVAILABLE ON TRIG MODEL #4080)

Find the volume of concrete required for an 8” x 16” footing that measures 100 Feet in length:

KEYSTROKE	DISPLAY
On/C On/C	**0.**
8 Inch × 1 6 Inch =	**128. SQ INCH**
Stor 6	**F-AR** STORED **128. SQ INCH**
1 0 0 Feet Conv Width *(Footing)*	**FTG 3.292181 CU YD**

Concrete Volume for Driveway

Calculate the Cubic Yards of concrete required to pour a driveway that measures: 45 Feet 5 Inches long x 13 Feet 6 Inches wide x 5 Inches deep. If concrete is $65 per Cubic Yard, what will it cost?

KEYSTROKE	DISPLAY
On/C On/C	**0.**
4 5 Feet 5 Inch	**45 FEET 5 INCH**
× 1 3 Feet 6 Inch	**13 FEET 6 INCH**
× 5 Inch =	**9.461806 CU YD**
× 6 5 Conv 0 *(Cost)*	**$615.^{02}** *(total cost)*

Converting D:M:S

Convert 23° 42’ 39” to decimal degrees:

KEYSTROKE	DISPLAY
On/C On/C	0.
2 3 • 4 2 • 3 9	DMS 23.42.39
Conv • *(dms◄►deg)*	23.71°

Drywall
(NOT AVAILABLE ON TRIG MODEL #4080)

Find the number of 4 x 8, 4 x 9 and 4 x 12 sheets needed to cover an area of 125 Square Feet:

KEYSTROKE	DISPLAY
On/C On/C	0.
1 2 5 Feet Feet	125 SQ FEET
Conv Height *(Drywall)*	4X8 3.90625
Height	4X9 3.472222
Height	4X12 2.604167

Polygon — *Brick Paving*

Find the Full Angle, Bi-sect Angle, Side Length, Perimeter and Area of a Polygon for paving a brick patio. The radius is 7 Feet 5 Inches and the number of sides is five:

KEYSTROKE	DISPLAY
On/C On/C	0.
7 Feet 5 Inch Conv Arc *(Radius)*	RAD 7 FEET 5 INCH
5 Conv Run *(Polygon)*	FULL 108.00°
Run	HALF 54.00°
Run	SIDE 8 FEET 8-5/8 INCH
Run	PER 43 FEET 7-1/8 INCH
Run	AREA 130.7868 SQ FEET

Roofing Materials

Find the roof area, number of roofing squares and bundles of shingles, stored bundles size, and number of 4 x 8 sheets needed for an 8” pitched roof covering a floor size of 15’ x 13’:

KEYSTROKE	DISPLAY
On/C On/C	0.
8 Inch Pitch	PTCH 8 INCH
1 5 Feet × 1 3 Feet =	195. SQ FEET
Conv Diag *(Roof)*	ROOF 234.3608 SQ FEET
Diag	SQRS 2.34
Diag	BNDL 7.03
Diag	B-SZ 33.33
Diag	4X8 7.32

Squaring-Up a Foundation

*Square-up a 15’ 6” x10’ 2” foundation:**

KEYSTROKE	DISPLAY
On/C On/C	0.
1 5 Feet 6 Inch Length	
	LNTH 15 FEET 6 INCH
1 0 Feet 2 Inch Width	
	WDTH 10 FEET 2 INCH
Width Width	SQUP 18 FEET 6-7/16 INCH

***Alternative Method, or for Trig model (#4080) Owners:**

Square-up a 15’ 6” x10’ 2” foundation.

KEYSTROKE	DISPLAY
On/C On/C	0.
1 5 Feet 6 Inch Run	
	RUN 15 FEET 6 INCH
1 0 Feet 2 Inch Rise	
	RISE 10 FEET 2 INCH
Diag	DIAG 18 FEET 6-7/16 INCH

Studs

Find the number of 16-inch On-center studs required for a wall measuring 25 feet in length:*

KEYSTROKE	DISPLAY
On/C On/C	0.
2 5 Feet Conv 5 *(Studs)*	STUD 20.

**If you are working with a number other than 16 Inches On-center, change it via* Stor 5 *(e.g., 18 Inches o.c., enter* 1 8 Inch Stor 5*, then recalculate above).*

RIGHT ANGLE/FRAMING

Pitch — *Converting Roof Angle*

Find the % Grade, Slope and Pitch in Inches if the roof angle is 30.25°:

KEYSTROKE	DISPLAY
On/C On/C	0.
3 0 • 2 5 Pitch	PTCH 30.25°
Pitch	%GRD 58.31828
Pitch	SLP 0.583183
Pitch	PTCH 7 INCH

Converting Slope

Find the Pitch in Inches, Pitch Degrees, and Percent Grade if the slope is 0.625:

KEYSTROKE	DISPLAY
On/C On/C	0.
• 6 2 5 Conv Pitch *(Slope)*	SLP 0.625
Pitch	PTCH 7-1/2 INCH
Pitch	PTCH 32.01°
Pitch	%GRD 62.5

Angle — *Rise and Hypotenuse Known* (TRIG #4080 AND DESKTOP #44080 MODELS ONLY)

Find the angle that connects the Rise and Hypotenuse of a Right Triangle, if the Rise is 6 Feet and the Hypotenuse is 10 Feet in length:

KEYSTROKE	DISPLAY
1. Use trigonometry formula (divide the rise by the hypotenuse):	
On/C On/C	**0.**
6 Feet ÷ 1 0 Feet =	**0.6**
2. Solve for angle or degrees:minutes:seconds:	
Conv Cos *(cos $^{-1}$)*	**53.13°**
Conv • *(dms◄►deg)*	**DMS 53.07.48**

Common Rafter Length

Find the point-to-point length of the Common rafter on a 7/12-pitched roof with a span of 28 Feet. What are the angle cuts?

KEYSTROKE	DISPLAY
1. Enter Pitch:	
On/C On/C	**0.**
7 Inch Pitch	**PTCH 7 INCH**
2. Enter half the span as the run:	
2 8 Feet ÷ 2 =	**14 FEET 0 INCH**
Run	**RUN 14 FEET 0 INCH**
3. Find the Common and cuts:	
Diag	**DIAG 16 FEET 2-1/2 INCH**
Diag	**PLMB 30.26°**
Diag	**LEVL 59.74°**

Regular Hip/Valley and Jack Rafters

A roof's Pitch is 9/12 and half the total span is 6 Feet. Find the lengths of the Common, Hip/Valley and Jack rafters. Also find the incremental jack adjustment and the cut angles. (Jack rafters at 16" On-center spacing.)

KEYSTROKE	DISPLAY
1. Find the Common rafter length:	
On/C On/C	0.
6 Feet Run	RUN 6 FEET 0 INCH
9 Inch Pitch	PTCH 9 INCH
Diag *(Common)*	DIAG 7 FEET 6 INCH
2. Find the Hip/Valley rafter length and cut angles; then the incremental jack adjustment, Jack rafter lengths and cut angles:	
Hip/V	H/V 9 FEET 7-1/4 INCH
Hip/V	PLMB 27.94°
Hip/V	LEVL 62.06°
Hip/V	CHK1 45.00°
Jack	JKOC STORED 16 INCH
Jack	INCR 1 FEET 8 INCH
Jack	JK 1 5 FEET 10 INCH
Jack	JK 2 4 FEET 2 INCH
Jack	JK 3 2 FEET 6 INCH

Jack	**JK 4 0 FEET 10 INCH**
Jack	**JK 5 0 FEET 0 INCH**
Jack	**PLMB 36.87°**
Jack	**LEVL 53.13°**
Jack	**CHK1 45.00°**

Irregular Hip/Valley

A roof has a 9/12 Pitch, an irregular Pitch of 8/12, and half the span is 6 Feet 7 Inches. Solve the Hip/Valley length. On-center spacing is 16 Inches.

KEYSTROKE	DISPLAY
1. Find Common rafter length:	
On/C On/C	**0.**
9 Inch Pitch	**PTCH 9 INCH**
6 Feet 7 Inch Run	**RUN 6 FEET 7 INCH**
Diag	**DIAG 8 FEET 2-3/4 INCH**
2. Enter On-center spacing and irregular Pitch; find irregular Hip rafter:	
1 6 Inch Stor 5 *(o.c.)*	**OC STORED 16 INCH**
8 Inch Conv Hip/V *(Ir/Pitch)*	**IPCH 8 INCH**
Hip/V	**IH/V 11 FEET 0-7/8 INCH**

Rake-Wall – *No Base*

Find each stud size in a Rake-Wall with a peak of 3 Feet 6 Inches, and a length of 5 Feet. Use 16 Inches as your On-center spacing (default; already stored):

KEYSTROKE	DISPLAY
1. Enter Rise and Run:	
On/C On/C	**0.**
3 Feet 6 Inch Rise	**RISE 3 FEET 6 INCH**
5 Feet Run	**RUN 5 FEET 0 INCH**
2. Find stud lengths:	
Conv Rise *(R/Wall)*	
	RWOC STORED 16 INCH
Rise	**RW 1 2 FEET 6-13/16 INCH**
Rise	**RW 2 1 FEET 7-5/8 INCH**
Rise	**RW 3 0 FEET 8-3/8 INCH**
Rise	**BASE 0 FEET 0 INCH**
3. Find Rake-Wall angle of incline:	
Rise	**RW 34.99°**

Rake-Wall – *With Base*

Find each stud size in a Rake-Wall with a peak of 4 Feet, a length of 8 Feet, and a base of 5 Feet. Use 16 Inches as your On-center spacing:

KEYSTROKE	DISPLAY
1. Enter Rise and Run:	
On/C On/C	0.
4 Feet Rise	RISE 4 FEET 0 INCH
8 Feet Run	RUN 8 FEET 0 INCH
2. Enter base and find stud lengths and angle of incline:	
5 Feet Conv Rise *(R/Wall)*	BASE 5 FEET 0 INCH
Rise	RWOC STORED 16 INCH
Rise	RW 1 8 FEET 4 INCH
Rise	RW 2 7 FEET 8 INCH
Rise	RW 3 7 FEET 0 INCH
Rise	RW 4 6 FEET 4 INCH
Rise	RW 5 5 FEET 8 INCH
Rise	BASE 5 FEET 0 INCH
Rise	RW 26.57°

STAIRS

Stairs — *Given Rise and Run*

You're going to build a stairway that has a floor-to-floor height of 10 Feet 1 Inch, a run of 12 Feet 5 Inches, and a desired riser height of 7-1/2 Inches (default). Find the stair values:

KEYSTROKE	DISPLAY

1. Enter rise and run:

On/C On/C	0.
1 0 Feet 1 Inch Rise	RISE 10 FEET 1 INCH
1 2 Feet 5 Inch Run	RUN 12 FEET 5 INCH

2. Recall stored 7-1/2" desired riser height, then find the stair values:

Rcl 7	R-HT STORED 7-1/2 INCH
Stair	R-HT ⚠ 7-9/16 INCH
Stair	RSRS 16.
Stair	R+/– 0 INCH
Stair	T-WD ⚠ 9-15/16 INCH
Stair	TRDS 15.
Stair	T+/– 0-1/16 INCH
Stair	OPEN 9 FEET 10-1/4 INCH
Stair	STRG 15 FEET 7-5/16 INCH
Stair	INCL 37.27°

Stairs — *Given Rise Only*

You're building a stairway with a total rise of 9 Feet 11 Inches. Using the default riser height of 7-1/2 Inches and tread width of 10 Inches, find the stair values:

KEYSTROKE	DISPLAY
1. Enter known Rise:	
On/C On/C	**0.**
9 Feet 1 1 Inch Rise	**RISE 9 FEET 11 INCH**
2. Recall stored desired stair riser height:	
Rcl 7	**R-HT STORED 7-1/2 INCH**
3. Recall stored desired stair tread width:	
Rcl 9	**T-WD STORED 10 INCH**
4. Find stair values:	
Stair	**R-HT 7-7/16 INCH**
Stair	**RSRS 16.**
Stair	**R+/– 0 INCH**
Stair	**T-WD STORED 10 INCH**
Stair	**TRDS 15.**
Stair	**T+/– 0 INCH**
Stair	**OPEN 10 FEET 1 INCH**
Stair	**STRG 15 FEET 6-15/16 INCH**
Stair	**INCL 36.64°**

Stairs — *Riser Limited Function*

Calculate stairs using the Riser Limited function, if you must limit the Riser Size to 7-1/2 Inches:

KEYSTROKE	DISPLAY

1. Enter Rise and Run:

On/C On/C	**0.**
1 0 Feet 1 Inch Rise	**RISE 10 FEET 1 INCH**
1 2 Feet 5 Inch Run	**RUN 12 FEET 5 INCH**

2. Recall stored 7-1/2" Desired Riser height and find stair values:

Rcl 7	**R-HT STORED 7-1/2 INCH**
Conv Stair *(Riser Limited)*	**R-HT 7-1/8 INCH**
Stair	**RSRS 17.**
Stair	**R+/– 0-1/8 INCH**
Stair	**T-WD ⚠ 9-5/16 INCH**
Stair	**TRDS 16.**
Stair	**T+/– 0 INCH**
Stair	**OPEN 9 FEET 9-5/8 INCH**
Stair	**STRG 15 FEET 7-5/8 INCH**
Stair	**INCL 37.42°**

DEFAULT SETTINGS

After a *Clear All* (Conv ⊠), your calculator will return to the following settings:

STORED VALUES	DEFAULT VALUE
Desired Riser Height	**7-1/2** INCH
Desired Tread Width	**10** INCH
Floor Height	**10** INCH
On-center Spacing	**16** INCH
Weight per Volume	**1.5** Ton Per CU YD
Block Area *(except Trig model)*	**128.** SQ INCH
Block Length *(except Trig model)*	**16** INCH
Footing Area *(except Trig model)*	**264.** SQ INCH
Spring (crown) Angle	**45.00°**

If you replace your batteries or perform a *Full Reset** (press Off, hold down ⊠, and press On/C), your calculator will return to the following settings (in addition to those listed above):

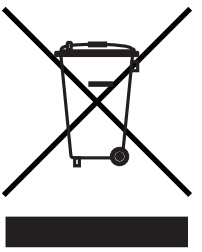
PREFERENCE SETTINGS	DEFAULT VALUE
Fractional Resolution	1/16
Area Display	Standard
Volume Display	Standard

(Cont'd)

(Cont'd)

PREFERENCE SETTINGS	DEFAULT VALUE
Stairway Headroom	6 feet 8 inch
Rake-Wall	Descending
Arched Wall	Outside
Jack Rafters	Descending
Irregular Jack Spacing	OC-OC
Exponent	Off
Meter Linear Display	0.000
Decimal Degree Display	0.00°
Fractional Mode	Standard

**Depressing the Reset button located above the* Pitch *key will also perform a Full Reset.*



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This equipment has been certified to comply with the limits for a Class B computing device, pursuant to Subpart J of Part 15 of FCC rules.

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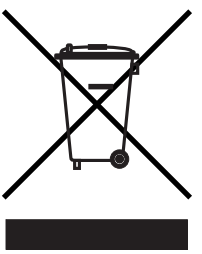

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