

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)*

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KEY DEFINITIONS

Basic Function Keys



Arithmetic operation keys.



Four-function (+, -, x, ÷) percent key.



Keys used for entering numbers.



Off Key — Turns all power off, clearing all non-permanent registers.



On/Clear Key — Turns on power. Pressing once clears the display. Pressing twice clears all temporary values.



Convert Key — Used with the dimensional keys to convert between dimensions or with other keys to access special functions.



Store Key — Used for storing values.



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.

Stor **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	<i>Arcsine (\sin^{-1})</i> — Gives the angle for the Sine value.
Cos	Finds the Cosine.
Conv Cos	<i>Arccosine (\cos^{-1})</i> — Gives the angle for the Cosine value.
Tan	Finds the Tangent.
Conv Tan	<i>Arctangent (\tan^{-1})</i> — 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	<i>Slope</i> — Enters a Pitch ratio, or slope (e.g., $\frac{\bullet}{5}$ 8 3 Conv Pitch).
Rise	Enters or calculates the vertical leg of a right triangle.
Conv Rise	<i>Rake-Wall</i> — 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:

<u>Press</u>	<u>Result</u>
---------------------	----------------------

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 | Sets Headroom. See |
| Stor | Stor | | 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 	Total Cost (based on entry of per unit cost)
Stor 	Stores Weight per Volume
Conv 	Tons
Conv 	Pounds
Conv 	Metric Tons
Conv 	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 5 Feet 1-1/2 Inch	On/C 5 Feet 1 Inch 1 / 2 *
Clear calculator 5 Yards	On/C 5 Yds
Clear calculator 17.5 Meters	On/C 1 7 . 5 m
Clear calculator 100 Centimeters	On/C 1 0 0 Conv 7
Clear calculator 500 Millimeters	On/C 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
5 5 Feet Feet + 1 0 %	60.5 SQ FEET
1 5 0 Feet Feet Feet + 2 0 %	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.
1 5 Feet Length	LNTH 15 FEET 0 INCH
2 0 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

1 **5** **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

1 **0** **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**
Conv **Yds**

14 SQ FEET
1.555556 SQ YD

Convert 12 Cubic Feet to Cubic Yards:

KEYSTROKE

DISPLAY

1 **2** **Feet** **Feet** **Feet**
Conv **Yds**

12 CU FEET
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**
8 **Feet** **X** **2** **2** **Feet** **=**
Conv **Length** (Blocks)

0.
176. SQ FEET
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 X 4 X 1 6 Conv 8 M+	BDFT 10.66667 M
2 X 1 0 X 1 8 Conv 8 M+	BDFT 30. M
2 X 1 2 X 2 0 Conv 8 M+	BDFT 40. M
Rcl Rcl	BDFT 80.66667
X 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

X **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 <i>(Footing)</i>	
	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 <i>(Cost)</i>	\$615.⁰²
	<i>(total cost)</i>

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 • (<i>dms</i> \blacktriangleleft \blacktriangleright <i>deg</i>)	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 (<i>Drywall</i>)	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 X 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" x 10' 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" x 10' 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 **◉** ($dms \leftrightarrow deg$) **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
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	(lr/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	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
0	0
+	+
-	-
*	*
/	/
=	=
ESC	ESC
ENTER	ENTER
SPACE	SPACE
DEL	DEL
HOME	HOME
END	END
PGUP	PGUP
PGDN	PGDN
F1	F1
F2	F2
F3	F3
F4	F4
F5	F5
F6	F6
F7	F7
F8	F8
F9	F9
F10	F10
F11	F11
F12	F12
NUMLOCK	NUMLOCK
NUM 7	NUM 7
NUM 8	NUM 8
NUM 9	NUM 9
NUM 0	NUM 0
NUM 1	NUM 1
NUM 2	NUM 2
NUM 3	NUM 3
NUM 4	NUM 4
NUM 5	NUM 5
NUM 6	NUM 6
NUM 7	NUM 7
NUM 8	NUM 8
NUM 9	NUM 9
NUM 0	NUM 0
NUM 1	NUM 1
NUM 2	NUM 2
NUM 3	NUM 3
NUM 4	NUM 4
NUM 5	NUM 5
NUM 6	NUM 6
NUM 7	NUM 7
NUM 8	NUM 8
NUM 9	NUM 9
NUM 0	NUM 0
NUM 1	NUM 1
NUM 2	NUM 2
NUM 3	NUM 3
NUM 4	NUM 4
NUM 5	NUM 5
NUM 6	NUM 6
NUM 7	NUM 7
NUM 8	NUM 8
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NUM 5	NUM 5
NUM 6	NUM 6
NUM 7	NUM 7
NUM 8	NUM 8

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
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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°
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DEFAULT SETTINGS

After a *Clear All* (**Conv** **X**), 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 (<i>except Trig model</i>)	128. SQ INCH
Block Length (<i>except Trig model</i>)	16 INCH
Footing Area (<i>except Trig model</i>)	264. SQ INCH
Spring (crown) Angle	45.00°

If you replace your batteries or perform a *Full Reset** (press **Off**, hold down **X**, 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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