MATERIAL ESTIMATOR™

Building Materials Estimating Calculator

Pocket Reference Guide

LNTH 24- 7 7/16

FEET   INCH

MATERIAL ESTIMATOR™
MODEL 4019 – MATERIALS ESTIMATING CALCULATOR

— CI

● Solar/Dual Power

| Off | On/C |

	Brick	Block Size	Wt / Vol	Board o.c.	Post o.c.
Concrete	Block	Gravel	Deck	Fence
Studs o.c.	Sheets	Tile Size	Grout Width	Coverage
Studs	Flooring	Custom Tile	Tile	Paint
Yds	Feet	Inch	/	%
Conv	7	8	9	÷
Stor	4	5	6	×
Rcl	1	2	3	−
M+	0	•	=	+

Model 4019

CALCULATED INDUSTRIES®

MATERIAL ESTIMATOR™

The *Material Estimator* calculator helps you save time, cut costly errors – and lets you measure and estimate *like a pro!*

Quickly Solve:

- Feet-Inch-Fractions, Yards, and Metric Dimensional Problems

- Feet-Inch-Fractions, Yards, and Metric Conversions

- Problems Involving All Fractions – 1/2-1/64ths!

- Instant Areas and Volumes

- Material Quantity (e.g., Concrete, Flooring)

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KEY DEFINITIONS

Basic Function Keys

➕ ➖ ✖️ ➗ ➖	Arithmetic operation keys.
0 – **9** and **•**	Keys used for entering numbers.
%	***Percent Key*** — Four-function (+, −, x, ÷) percent key.
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*** — Used with other keys to *recall* stored values and settings.

Unit Keys

Yds   ***Yards Key*** — Enters or converts to Yards.

Feet   ***Feet Key*** — Enters or converts to Feet as whole or decimal numbers. Also used with the **Inch** and **/** keys for entering Feet-Inch values (e.g., **6** **Feet** **9** **Inch** **1** **/** **2**). Repeated presses during conversions toggle between Fractional and Decimal Feet.

Inch   ***Inch Key*** — Enters or converts to Inches. Entry can be whole or decimal numbers. Also used with the **/** key for entering Fractional Inch values (e.g., **9** **Inch** **1** **/** **2**). Repeated presses during conversions toggle between Fractional and Decimal Inches.

/   ***Fraction Bar Key*** — Used to enter Fractions. Fractions can be entered as proper (1/2, 1/8, 1/16) or improper (3/2, 9/8). If the denominator (bottom value) is not entered, the calculator's fractional accuracy setting is automatically used.

Conv **5**	**Meters (m)** — Enters or converts to Meters.
Conv **7**	**Centimeters (cm)** — Enters or converts to Centimeters.
Conv **9**	**Millimeters (mm)** — Enters or converts to Millimeters.
Conv **8**	**Board Feet (Bd Ft)** — Enters or converts Cubic values to Board Feet. One Board Foot is equal to 144 Cubic Inches.

Project Keys

Paint   **Paint** — Calculates volume of paint, based on an entered area and a stored **Paint Coverage per Gallon**. Finds quantity in Gallons, Quarts or Pints upon repeated presses.

Stor **Paint**   **Paint Coverage** — Stores Paint Coverage per Gallon in Square Feet. To recall this setting, press **Rcl** **Paint**. Default is 350 Square Feet per Gallon.

Tile   **Tile** — Finds the number of tiles, based on an entered area and a user-stored **Grout Width**. Repeated presses will scroll between numbers of tiles for various "standard" tile sizes (18", 16", 13", 12", 10", 8", 6", 4", 2", 1" and 24").

Note: Tile sizes shown in Inches, not Square Inches. In other words, a 6 Inch tile is really 6 Inches x 6 Inches, or a 36 Square Inch tile, but it is labeled as a 6 Inch-size.

Stor **Tile**   **Grout Width** – Stores Grout Width in Inches; used in calculating the number of tiles. To recall this setting, press **Rcl** **Tile**. Default is 0 (no grout width).

Deck	**Deck** — Finds the number of boards for a deck, based on an entered area and a stored **Board Width** or **Board On-center**. Repeated presses will scroll between numbers of boards for various "standard" board lengths (12', 10', 8', 20', 18', 16' and 14').
Stor Deck	**Board Width/O.C.** — Stores Board Width or Board On-center, in Inches, for deck or fence calculations. To recall this setting, press **Rcl Deck**. Default is 5-11/16 Inches.
Fence	**Fence** — Multi-function key that finds the number of fence boards, number of posts and number of rails (2-Rail and 3-Rail) based on an entered distance, a stored **Board Width/O.C.** and a stored **Post Spacing**.
Stor Fence	**Post Spacing** — Stores Post Spacing On-center for fence in Feet-Inches. To recall this setting, press **Rcl Fence**. Default is 8 Feet.

| **Studs** | ***Studs*** — Calculates number of studs, based on an entered linear distance and a stored **On-center Spacing**. |

Note: *Automatically adds one stud to the calculated answer to account for one on the end.*

| **Stor** **Studs** | ***On-center for Studs*** — Stores On-center spacing for studs in Inches. To recall this setting, press **Rcl** **Studs**. Default is 16". |

| **Flooring** | ***Flooring*** — Calculates the required length for 12', 13', 15' or 6' wide rolls, based on an entered area. Calculates the coverage area, in Square yards, for each roll width, based on the entered length. |

| **Conv** **Flooring** | ***Sheets*** — Calculates the number of 4' x 8', 4' x 9', 4' x 10' and 4' x 12' sheets, based on entered linear distance or area. |

| **Custom Tile** | ***Custom Tile*** — Calculates number of tiles needed based on an entered area and a stored **Tile Size**. This is used separately from the regular Tile Key (**Tile**). |

Note: *Calculation does not account for grout width for custom tiles, so you will need to adjust for this.*

Stor **Custom Tile**	***Custom Tile Size*** — Stores Custom Tile Size in Square Inches. To recall this setting, press **Rcl** **Custom Tile**. Default is 24-Square Inches.
Concrete	***Concrete*** — Calculates the number of 80 lbs., 60 lbs. and 40 lbs. bags of concrete required, based on an entered volume (e.g., Cubic Feet or Cubic Yards). Calculates the volume of concrete yielded by the entered quantity of bags for each of the three bag sizes.
Conv **Concrete**	***Brick*** — Calculates the number of standard 8-Inch-size U.S. bricks (with 3/8" mortar) based on entered linear distance (or area) for both "face" (21-Square Inch) and "paver" (32-Square Inch) brick applications.
Block	***Block*** — Calculates the number of standard 128-Square Inch blocks (includes 1/2" mortar), based on an entered linear distance or area and a stored **Block Size**.

Stor **Block**	***Block Size*** — Stores the Block Size. Stores linear entry as Block Length and area as Block Area. To recall this setting, press **Rcl** **Block**. The default length is 16 Inches and the default area is 128 Square Inches (includes 1/2" mortar).
Gravel	***Gravel*** — Calculates tons of gravel required, based on an entered volume and a stored **Weight per Volume**.
Stor **Gravel**	***Gravel Weight per Volume*** — Stores the number of Tons per Cubic Yard of gravel. To recall this setting, press **Rcl** **Gravel**. Default is 1.5 Tons per Cubic Yard.
Conv **0**	***Cost*** — Calculates total material cost based on stored **Unit Cost** and entered or solved material quantity.
Stor **0**	***Unit Cost*** — Stores the Unit Cost for calculating the total cost. To recall this setting, press **Rcl** **0**. Default is 0.00 (no Unit Cost).

Miscellaneous Functions

Conv **•**	**($\sqrt{x}$) Square Root**
Conv **÷**	**(1/x) Reciprocal** — Finds the reciprocal of a number (e.g., **8** **Conv** **÷** **0.125**).
Conv **✕**	**Clear All** — Clears all values, including M+, and returns all stored values to the default settings (does not affect Preference Settings).
Conv **−**	**(+/–) Toggle**
Conv **+**	**Pi (π) 3.141593**
Conv **%**	**x^2** — Squares the value in the display.
Conv **Stor**	Preference Settings
M+	**Memory Key** — Adds the displayed value to Memory. Clears when the calculator is shut off.
Conv **M+**	**Memory Minus (M–)** — Subtracts the displayed value from Memory.
Rcl **M+**	**Memory Recall** — Recalls value from Memory without clearing.
Conv **Rcl**	**Memory Clear** — Clears Memory without changing current display.

Rcl **Rcl**	***Memory Clear*** — Clears Memory and displays Memory Total.
Rcl **=**	***Paperless Tape*** – Useful for checking figures, as it scrolls through your past 20 entries or calculations. Press **Rcl** **=** to access Paperless Tape mode. Press **+** or **−** to scroll forward or backward. Press **=** to exit mode and continue with a new entry or calculation.

Paperless Tape Example

Add 6 Feet, 5 Feet and 4 Feet, then access the paperless tape mode and scroll back through your entries. Then, back up one entry, exit the tape mode and add 10 Feet to the total.

KEYSTROKE	DISPLAY
On/C **On/C**	**0.**
6 **Feet** **+**	**6 FEET 0 INCH**
5 **Feet** **+**	**11 FEET 0 INCH**
4 **Feet** **=**	**15 FEET 0 INCH**
Rcl **=**	**TTL= 15 FEET 0 INCH**
+	**01 6 FEET 0 INCH**
+	**02 + 5 FEET 0 INCH**
+	**03 + 4 FEET 0 INCH**
−	**02 + 5 FEET 0 INCH**
−	**TTL= 15 FEET 0 INCH**
+ **1** **0** **Feet** **=**	**25 FEET 0 INCH**

Preference Settings

Press **Conv**, *then* **Stor**, *then keep pressing* **Stor** *to toggle through the main settings. Press the* ➕ *key to advance within sub-setting. Use the* ➖ *key to back up. Press the* **On/C** *key to exit Preferences.*

PRESS **Conv** AND:	SETTING--FUNCTION
First press	*Fractional Resolution:*
of **Stor**:	**--1/16**
➕	**--1/32**
➕	**--1/64**
➕	**--1/2**
➕	**--1/4**
➕	**--1/8**
➕	**--1/16** *(repeats options)*
Second press	*Area Displays:*
of **Stor**:	**--Std.**
➕	**--0. SQ FEET**
➕	**--0. SQ YD**
➕	**--0. SQ M**
➕	**--Std.** *(repeats options)*
Third press	*Volume Displays:*
of **Stor**:	**--Std.**
➕	**--0. CU YD**
➕	**--0. CU FEET**
➕	**--0. CU M**
➕	**--Std.** *(repeats options)*
Fourth press	*Meter Linear Displays:*
of **Stor**:	**--0.000 M**
➕	**--FLOAt M** *(floating point)*
➕	**--0.000 M** *(repeats options)*
Fifth press	*Fractional Mode:*
of **Stor**:	**--Std.**
➕	**--COnSt**
➕	**--Std.** *(repeats options)*

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
On/C On/C	**0.**
6 Feet 2 Inch 1 / 2 +	
	6 FEET 2-1/2 INCH
1 1 Feet 5 Inch 1 / 4 +	
	17 FEET 7-3/4 INCH
1 8 • 2 5 Inch =	**19 FEET 2 INCH**
− 2 Inch 1 / 8 =	**18 FEET 11-7/8 INCH**

Multiplying Dimensions

What is the perimeter of a room with three walls which measure 15 Feet 3-3/4 Inches each?

KEYSTROKE	DISPLAY
3 ✕ 1 5 Feet 3 Inch 3 / 4 =	
	45 FEET 11-1/4 INCH

Multiply 5 Feet 3 Inches by 11 Feet 6-1/2 Inches:

KEYSTROKE	DISPLAY
5 Feet 3 Inch ✕ 1 1 Feet	
6 Inch 1 / 2 =	**60.59375 SQ FEET**

Dividing Dimensions

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

KEYSTROKE	DISPLAY
On/C On/C	0.
1 5 Feet 3 Inch 3 / 4 ÷ 3 =	
	5 FEET 1-1/4 INCH

How many 3' 6" pieces can you cut from one 25' board?

KEYSTROKE	DISPLAY
On/C On/C	0.
2 5 Feet ÷ 3 Feet 6 Inch =	**7.142857**
	(or 7 whole pieces)

Percent Calculations

Add a 10% waste allowance to 2.78 Cubic Yards.

KEYSTROKE	DISPLAY
On/C On/C	0.
2 • 7 8 Yds Yds Yds + 1 0 %	
	3.058 CU YD

What is 25% of $1,575?

KEYSTROKE	DISPLAY
On/C On/C	0.
1 5 7 5 ✕ 2 5 %	**393.75**

Square Area

Find the area of a square room with sides measuring 15 Feet 8-1/2 Inches.

KEYSTROKE	DISPLAY
On/C **On/C**	**0.**
1 **5** **Feet** **8** **Inch** **1** **/** **2**	
	15 FEET 8-1/2 INCH
Conv **%** *(x²)*	**246.7517 SQ FEET**

Square Root

What is the Square Root of 200?

KEYSTROKE	DISPLAY
On/C **On/C**	**0.**
2 **0** **0** **Conv** **•** *(√x̄)*	**14.14214**

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
On/C **On/C**	**0.**
5 **5** **Feet** **Feet** **+** **1** **0** **%**	**60.5 SQ FEET**
1 **5** **0** **Feet** **Feet** **Feet** **+** **2** **0** **%**	
	180. CU FEET

Linear Conversions

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

KEYSTROKE	DISPLAY
On/C On/C	**0.**
1 0 Feet 6 Inch	**10 FEET 6 INCH**
Conv Yds	**3.5 YD**
Conv Inch	**126 INCH**
Conv 5 *(m)*	**3.200 M**
Conv 7 *(cm)*	**320.04 CM**
Conv 9 *(mm)*	**3200.4 MM**

Convert 14 Feet 7-1/2 Inches to Decimal Feet:

KEYSTROKE	DISPLAY
On/C On/C	**0.**
1 4 Feet 7 Inch 1 / 2	
	14 FEET 7-1/2 INCH
Conv Feet	**14.625 FEET**

Convert 22.75 Feet to Feet-Inches:

KEYSTROKE	DISPLAY
On/C On/C	**0.**
2 2 • 7 5 Feet	**22.75 FEET**
Conv Feet	**22 FEET 9 INCH**

Square and Cubic Conversions

Convert 14 Square Feet to Square Yards:

KEYSTROKE	DISPLAY
On/C On/C	0.
1 4 Feet Feet	14 SQ FEET
Conv Yds	1.555556 SQ YD

Convert 25 Square Yards to Square Feet:

KEYSTROKE	DISPLAY
On/C On/C	0.
2 5 Yds Yds	25 SQ YD
Conv Feet	225. SQ FEET

Convert 12 Cubic Feet to Cubic Yards:

KEYSTROKE	DISPLAY
On/C On/C	0.
1 2 Feet Feet Feet	12 CU FEET
Conv Yds	0.444444 CU YD

Using the Memory

Whenever the **M+** key is pressed, the displayed value will be added to the Memory. Other Memory functions:

FUNCTION	KEYSTROKES
Add to Memory	**M+**
Subtract from Memory	**Conv** **M+**
Recall total in Memory	**Rcl** **M+**
Display/Clear Memory	**Rcl** **Rcl**
Clear Memory	**Conv** **Rcl**

Memory is semi-permanent, clearing only when you:

1) turn off the calculator;
2) press **Rcl** **Rcl**;
3) press **Conv** **Rcl**;
4) press **Conv** **X** *(Clear All)*.

When Memory is recalled (**Rcl** **M+**), consecutive presses of **M+** will display the total, the calculated average and the total count of the accumulated values.

Example:

KEYSTROKE	DISPLAY
3 **5** **5** **M+**	M+ 355. **M**
2 **5** **5** **M+**	M+ 255. **M**
7 **4** **5** **Conv** **M+** *(M-)*	M- 745. **M**
Rcl **M+**	TTL ▉STORED▉ – 135. **M**
M+	AVG – 45. **M**
M+	CNT 3. **M**
Rcl **Rcl**	M+ – 135.

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PROJECT EXAMPLES

Paint: Gallons, Quarts or Pints of

How many quarts of paint will you need to cover a wall measuring 12 Feet x 8 Feet? How many Pints? How many Gallons?

KEYSTROKE	DISPLAY
On/C **On/C**	**0.**
1 **2** **Feet** **X** **8** **Feet** **=**	**96.** SQ FEET
Paint	**QT 1.10**
Paint	**PINT 2.19**
Paint	**GAL 0.27**

You can store a custom paint coverage per Gallon by entering the new value then pressing **Stor** **Paint** (e.g., **2** **5** **0** **Feet** **Feet** **Stor** **Paint**). Perform a *Clear All* (**Conv** **X**) to return to default setting.

Tiles: Number of

How many tiles do you need to cover a floor measuring 10 Feet x 15 Feet? You want a grout width of 1/8 Inch, but you're not sure of the tile size you're going to use. So, find the number of tiles in various sizes. Also, add a 10% waste allowance, in case you need extra tile.

KEYSTROKE	DISPLAY
On/C **On/C**	**0.**
1 **/** **8** **Stor** **Tile** *(Grout Width)*	
	GRT STORED **0-1/8 INCH**
1 **0** **Feet** **✗** **1** **5** **Feet** **=**	**150. SQ FEET**
+ **1** **0** **%**	**165. SQ FEET**
Tile	**TILE 72.33 (18 in)**
Tile	**TILE 91.38 (16 in)**

Continuous presses of **Tile** display the number of Tiles for the following sizes: 18", 16", 13", 12", 10", 8", 6", 4", 2", 1", 24".

Custom Tiles: Number of - Using A Non-Default Custom Size

How many tiles do you need if you're using a custom tile size of 4-1/4 Inches x 4-1/4 Inches to cover a floor that is 10 Feet x 15 Feet?

KEYSTROKE	DISPLAY
On/C **On/C**	**0.**
4 **Inch** **1** **/** **4** **✗** **4** **Inch**	
1 **/** **4** **=** **Stor** **Custom Tile** *(Tile Size)*	
	TILE STORED **18.0625 SQ INCH**
1 **0** **Feet** **✗** **1** **5** **Feet** **=**	**150. SQ FEET**
Custom Tile	**TILE 1195.85**

Deck: Number of Boards

Find the number of boards needed to build a deck, if the deck area measures 7 Feet x 16 Feet.

KEYSTROKE	DISPLAY
On/C **On/C**	**0.**
7 **Feet** **X** **1** **6** **Feet** **=**	**112. SQ FEET**
Deck	**BDS 20. (12 Ft)**
Deck	**BDS 24. (10 Ft)**
Deck	**BDS 30. (8 Ft)**
Deck	**BDS 12. (20 Ft)**
Deck	**BDS 14. (18 Ft)**
Deck	**BDS 15. (16 Ft)**
Deck	**BDS 17. (14 Ft)**
Deck*	**BDoc** **STORED** **5-11/16 INCH**

*Last press displays stored Board Width.

You can store a custom Board On-center by entering the new value then pressing **Stor** **Deck** (e.g., **4** **Inch** **Stor** **Deck**). Perform a *Clear All* (**Conv** **X**) to return to default setting.

Fence: Number of Fence Boards, Posts and Rails

Find the number of fence boards, posts and rails required to build a fence, where the distance for the fence is 40 Feet 6 Inches.

Note: *The last two presses in the following example will display stored Post On-center and Board Width.*

KEYSTROKE	DISPLAY
On/C On/C	**0.**
4 0 Feet 6 Inch	**40 FEET 6 INCH**
Fence	**BDS 86.**
Fence	**POST 7.**
Fence	**2-RL 12.**
Fence	**3-RL 18.**
Fence	**P-oc** STORED **8 FEET 0 INCH**
Fence	**BDoc** STORED **5-11/16 INCH**

You can store a custom Post On-center by entering the new value then pressing **Stor Fence** (e.g., **6 Feet Stor Fence**). Perform a *Clear All* (**Conv ✕**) to return to default setting.

Board Feet: Lumber Estimation

The default entry format for Board Feet is "Inch x Inch x Feet" *(e.g.,* **2 ☒ 4 ☒ 1 4** is 2 Inches x 4 Inches x 14 Feet). You can also convert Cubic values (volume) to Board Feet.

Enter board sizes and calculate Board Feet:

KEYSTROKE	DISPLAY
On/C On/C	**0.**
2 ☒ 4 ☒ 1 4 Conv 8 *(Bd Ft)*	
	BDFT 9.333333

Enter Cubic Feet and convert to Board Feet:

KEYSTROKE	DISPLAY
On/C On/C	**0.**
1 5 0 Feet Feet Feet	**150 CU FEET**
Conv 8 *(Bd Ft)*	**BDFT 1800.**

Studs: Number of

How many 16 Inches On-center studs are required for a 15 Feet 6 Inches wall?

KEYSTROKE	DISPLAY
On/C On/C	**0.**
1 5 Feet 6 Inch	**15 FEET 6 INCH**
Studs	**STUD 13.***

*Automatically includes one stud for the end.

You can store a custom Stud On-center by entering the new value then pressing **Stor Studs** (e.g., **2 4 Inch Stor Studs**). Perform a *Clear All* (**Conv ☒**) to return to default setting.

Sheets: Number of

How many 4 x 8, 4 x 9, 4 x 10 or 4 x 12 drywall sheets do you need for a room measuring 12 Feet x 15 Feet?

KEYSTROKE	DISPLAY
On/C **On/C**	**0.**
① ② **Feet** ➕ ① ② **Feet** ➕	**24 FEET 0 INCH**
① ⑤ **Feet** ➕ ① ⑤ **Feet** ✖	**54 FEET 0 INCH**
⑧ **Feet** ➖	**432. SQ FEET**
Conv **Flooring** *(Sheets)*	**4X8 13.50**
Flooring	**4X9 12.00**
Flooring	**4X10 10.80**
Flooring	**4X12 9.00**

Flooring: Length of

Find the length of flooring needed to cover a floor that measures 12 Feet 6 Inches x 10 Feet in area.

KEYSTROKE	DISPLAY
On/C **On/C**	**0.**
① ② **Feet** ⑥ **Inch** ✖ ① ⓪ **Feet** ➖	
	125. SQ FEET
Flooring	**LNTH 10.42 FEET (12 Ft)**
Flooring	**LNTH 9.62 FEET (13 Ft)**
Flooring	**LNTH 8.33 FEET (15 Ft)**
Flooring	**LNTH 20.83 FEET (6 Ft)**

Concrete: Bags of

Find the number of bags of concrete for a patio measuring 9 Feet x 15 Feet x 4 Inches.

KEYSTROKE	DISPLAY
`On/C` `On/C`	**0.**
`9` `Feet` `X` `1` `5` `Feet` `X` `4` `Inch` `=`	
	1.666667 CU YD
`Concrete`	**BAGS 67.50 (80 Lb)**
`Concrete`	**BAGS 90.00 (60 Lb)**
`Concrete`	**BAGS 135.00 (40 Lb)**

Bricks/Blocks: Number of, for a Wall

Find the number of bricks, both face and paver, and concrete blocks needed to build a 14 Feet x 8 Feet wall.

KEYSTROKE	DISPLAY
`On/C` `On/C`	**0.**
`1` `4` `Feet` `X` `8` `Feet` `=`	**112. SQ FEET**
`Conv` `Concrete` *(Brick)*	**FACE 768.00**
`Concrete`	**PAVR 504.00**
`Concrete`	**AREA 112. SQ FEET**
`Block`	**BLKS 126.00**

You can store a custom block area by entering or solving for the new value then pressing `Stor` `Block` (e.g., `6` `Inch` `X` `1` `6` `Inch` `=` `Stor` `Block`). Perform a *Clear All* (`Conv` `X`) to return to default setting.

Gravel: Tons of

How much gravel (in tons) do you need to cover a driveway that is 36 Feet x 11 Feet, at 4 Inches deep?

KEYSTROKE	DISPLAY
On/C On/C	0.
3 6 Feet ✕ 1 1 Feet ✕ 4 Inch ⊟	4.888889 CU YD
Gravel	WGHT 7.33 Ton
Gravel	STORED 1.5 Ton Per CU YD
Gravel	VOL 4.888889 CU YD

You can store a custom Tons per Cubic Yard value by entering the new value, then pressing Stor Gravel (e.g., 1 • 7 5 Stor Gravel). Perform a *Clear All* (Conv ✕) to return to default setting.

FINDING THE COST OF MATERIALS

Cost of Paint

How many Gallons of paint will you need to cover 425 Square Feet? What will the total cost be at $12.99 per Gallon?

KEYSTROKE	DISPLAY
On/C On/C	0.
1 2 • 9 9 Stor 0	COST STORED Per 12.99
4 2 5 Feet Feet	425 SQ FEET
Paint	GAL 1.21
⊟	1.214286
Conv 0 *(Cost)*	TTL$ 15.⁷⁷

APPENDIX

Setting Fractional Resolution

Fractional resolution is permanently set via the Preference Settings (see **Preference Settings** section for instructions). To select other formats temporarily (e.g., 1/64ths, 1/32nds, etc.), see the example below:

Add 44/64th to 1/64th of an inch and then convert the answer to other fractional resolutions:

KEYSTROKE	DISPLAY
On/C On/C	**0.**
4 4 ∕ 6 4	**0-44/64 INCH**
+ 1 ∕ 6 4 =	**0-45/64 INCH**
Conv 1 *(1/16)*	**0-11/16 INCH**
Conv 2 *(1/2)*	**0-1/2 INCH**
Conv 3 *(1/32)*	**0-23/32 INCH**
Conv 4 *(1/4)*	**0-3/4 INCH**
Conv 6 *(1/64)*	**0-45/64 INCH**
Conv 8 *(1/8)*	**0-3/4 INCH**
On/C On/C	**0.**

Note: Changing the Fractional Resolution on a displayed value does not alter your Permanent Fractional Resolution Setting. Pressing On/C will return your calculator to the permanently set fractional resolution.

Default Settings

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

STORED VALUE	DEFAULT VALUE
Block Area	128. SQ INCH
Block Length	16 INCH
Weight per Volume	1.5 Ton Per CU YD
Board On-center	5-11/16 INCH
Post On-center	8 FEET 0 INCH
Studs On-center	16 INCH
Custom Tile Size	24 SQ INCH
Tile Grout Width	0 INCH
Paint Coverage Area	350. SQ FEET
Unit Cost	$0.⁰⁰

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
Meter Linear Display	0.000
Fractional Mode	Standard

Pressing the Reset hole located above the **On/C key will also perform a Full Reset.*

Auto-Shut Off

Your calculator will shut itself off after about 8-12 minutes of non-use.

Accuracy/Errors

Accuracy/Display Capacity — Your calculator has a twelve-digit display made up of eight digits (normal display) and four fractional digits. You may enter or calculate values up to 19,999,999.99. Each calculation is carried out internally to twelve digits. Most material calculations will result in an answer rounded up two places. Press the ⊟ key to see the non-rounded value.

Errors — When an incorrect entry is made, or the answer is beyond the range of the calculator, it will display an error. To clear an error condition you must hit the *On/C* button once. At this point, you must determine what caused the error and re-key the problem.

Error Codes:

DISPLAY	ERROR TYPE
OFLO	Overflow (too large)
MATH Error	Divide by 0
DIM Error	Dimension error
ENT Error	Entry error

Auto-Range — If an "overflow" is created because of an input and calculation with small units that are out of the standard seven-digit range of the display, the answer will be automatically expressed in the next larger units (instead of showing "OFLO") — e.g., 20,000,000 mm is shown as 20,000 m. Also applies to inches, feet and yards.

Battery

This model uses **one (1) CR2016** battery (included). Should your calculator display become very dim or erratic, replace the battery.

Note: Please use caution when disposing of your old battery, as it contains hazardous chemicals.

Replacement batteries are available at most discount or electronics stores. You may also call Calculated Industries at 1-775-885-4900.

Replacing the Battery

Turn the calculator over and open user guide door located at the top. Pull battery holder out (top left corner) and turn over. Remove old battery and slide new battery under tabs. Turn holder over (negative side facing you) and insert into calculator.

Reset

If your calculator should ever "lock up," press Reset — a small hole located above the Ⓞⁿ⁄𝒸 key — to perform a total reset.

AREA AND VOLUME FORMULAS

Area Formulas

Square
Area = a^2

Triangle
Area = $1/2\ ab$

Rectangle
Area = lw

Octagon
Area = $(d/2)^2$ x 2.828
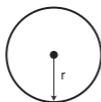
Circle
Circumference = $2\pi r$
Area = πr^2
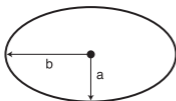
Ellipse
Area = πab

Volume Formulas
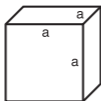
Cube
Surface Area = $6a^2$
Volume = a^3
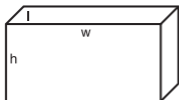
Rectangle
Surface Area =
$2hw + 2hl + 2lw$
Volume = $l \times w \times h$

Cone
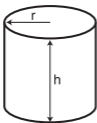Surface Area = $\pi r \sqrt{r^2 + h^2}$
($+ \pi r^2$ if you add the base)
Volume = $\dfrac{\pi r^2 h}{3}$

Sphere
Surface Area = $4\pi r^2$
Volume = $4/3\pi r^3$

Cylinder
Surface Area = $2\pi rh + 2\pi r^2$
Volume = $\pi r^2 h$

REPAIR AND RETURN

Warranty, Repair and Return Information

Return Guidelines:

1. Please read the *Warranty* in this User's Guide to determine if your Calculated Industries product remains under warranty **before** calling or returning any device for evaluation or repairs.

2. If your product won't turn on, check the batteries as outlined in the User's Guide.

3. If you need more assistance, please go to the website listed below.

4. If you believe you need to return your product, please call a Calculated Industries representative between the hours of 8:00am and 4:00pm Pacific Time for additional information and a Return Merchandise Authorization (RMA).

Call Toll Free: 1-800-854-8075

Outside USA: 1-775-885-4900

www.calculated.com/warranty

WARRANTY

Warranty Repair Service – U.S.A.

Calculated Industries (CI) warrants this product against defects in materials and workmanship for a period of one (1) year from the date of original consumer purchase in the U.S. If a defect exists during the warranty period, CI, at its option, will either repair (using new or remanufactured parts) or replace (with a new or remanufactured calculator) the product at no charge.

THE WARRANTY WILL NOT APPLY TO THE PRODUCT IF IT HAS BEEN DAMAGED BY MISUSE, ALTERATION, ACCIDENT, IMPROPER HANDLING OR OPERATION, OR IF UNAUTHORIZED REPAIRS ARE ATTEMPTED OR MADE. SOME EXAMPLES OF DAMAGES NOT COVERED BY WARRANTY INCLUDE, BUT ARE NOT LIMITED TO, BATTERY LEAKAGE, BENDING, A "BLACK INK SPOT" OR VISIBLE CRACKING OF THE LCD, WHICH ARE PRESUMED TO BE DAMAGES RESULTING FROM MISUSE OR ABUSE.

To obtain warranty service in the U.S., please go to the website.

A repaired or replacement product assumes the remaining warranty of the original product or 90 days, whichever is longer.

Non-Warranty Repair Service – U.S.A.

Non-warranty repair covers service beyond the warranty period, or service requested due to damage resulting from misuse or abuse.

Contact Calculated Industries at the number listed above to obtain current product repair information and charges. Repairs are guaranteed for 90 days.

Repair Service – Outside the U.S.A.

To obtain warranty or non-warranty repair service for goods purchased outside the U.S., contact the dealer through which you initially purchased the product. If you cannot reasonably have the product repaired in your area, you may contact CI to obtain current product repair information and charges, including freight and duties.

Disclaimer

CI MAKES NO WARRANTY OR REPRESENTATION, EITHER EXPRESS OR IMPLIED, WITH RESPECT TO THE PRODUCT'S QUALITY, PERFORMANCE, MER-CHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE. AS A RESULT, THIS PRODUCT, INCLUD-ING BUT NOT LIMITED TO, KEYSTROKE PROCE-DURES, MATHEMATICAL ACCURACY AND PREPRO-GRAMMED MATERIAL, IS SOLD "AS IS," AND YOU, THE PURCHASER, ASSUME THE ENTIRE RISK AS TO ITS QUALITY AND PERFORMANCE.

IN NO EVENT WILL CI BE LIABLE FOR DIRECT, INDI-RECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY DEFECT IN THE PRODUCT OR ITS DOCUMENTATION.

The warranty, disclaimer, and remedies set forth above are exclusive and replace all others, oral or written, expressed or implied. No CI dealer, agent, or employee is authorized to make any modification, extension, or addition to this warranty.

Some states do not allow the exclusion or limitation of implied warranties or liability for incidental or consequen-tial damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific rights, and you may also have other rights, which vary from state to state.

FCC CLASS B

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.

LOOKING FOR NEW IDEAS

Calculated Industries, a leading manufacturer of special-function calculators and digital measuring instruments, is always looking for new product ideas in these areas.

If you have an idea, or a suggestion for improving this product or User's Guide, please submit your comments online at www.calculated.com under "Contact Us," then "Product Idea Submittal Agreement." Thank you.