Using the Casio fx-83GT

Changing an answer to a decimal quickly

When an answer is not an integer value the calculator will display the answer in its standard setting.

The quickest way to change this answer is....

Press ⬆

then execute EXE

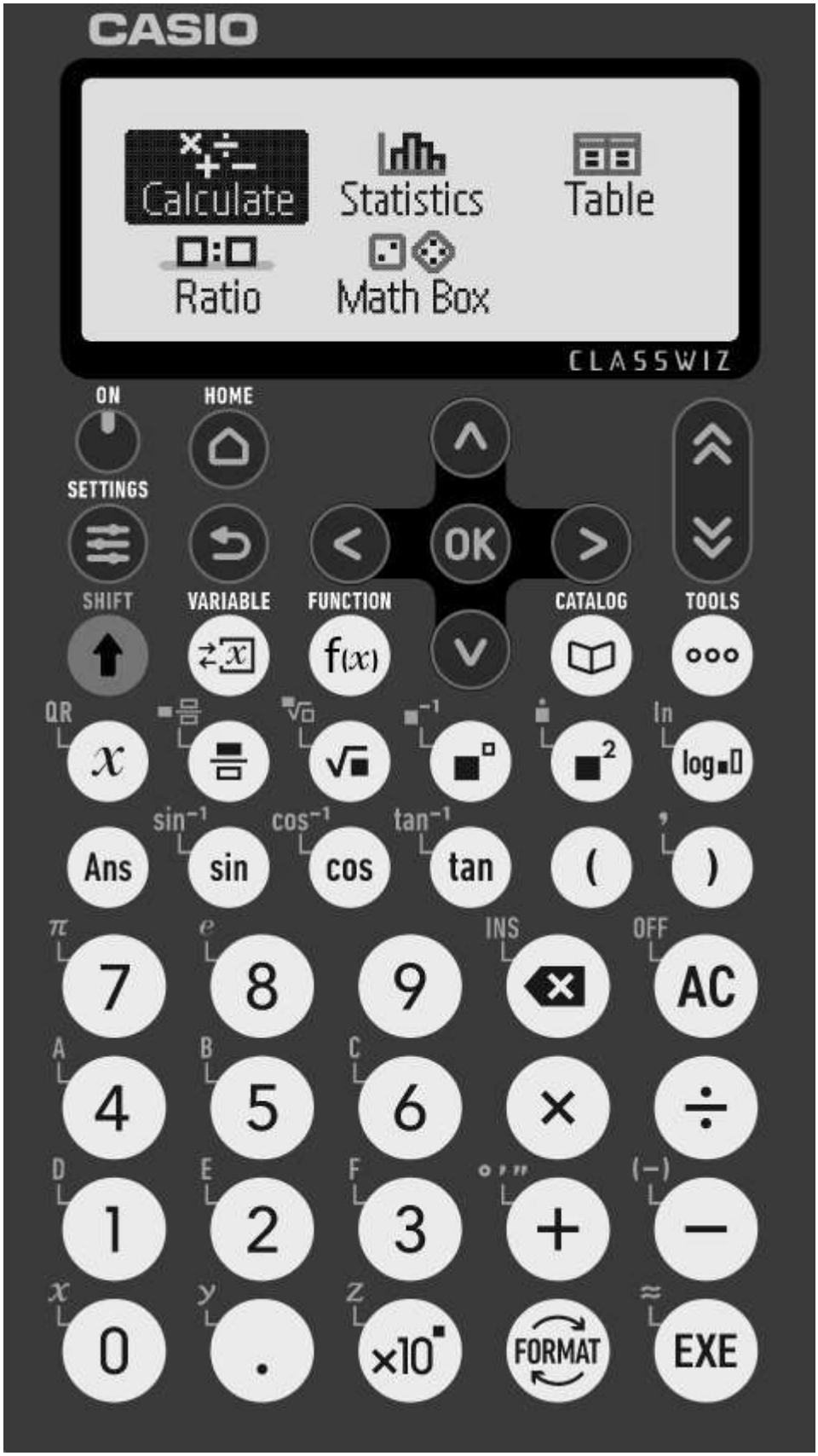
If you want the decimal straight away.....

Type $15 \div 6$

Press ⬆

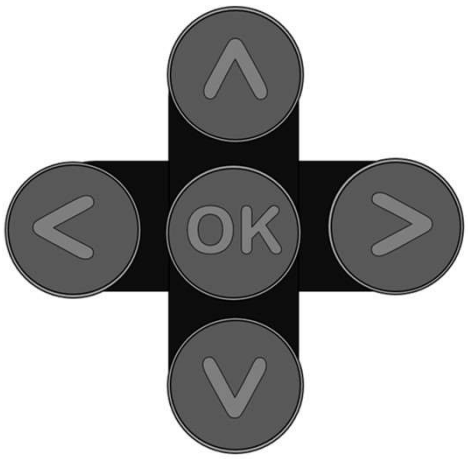
then execute EXE

Start Screen



Choose calculate to be able to do calculations

Basic Buttons

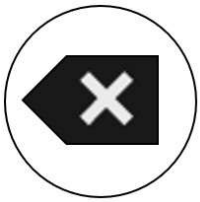


Arrow Keys

Move the cursor around the screen

AC Button

Clears the calculator



DEL Button (delete)

Deletes characters from the screen

Execute

works out the calculation

ANS Button

Uses the last answer calculated

Format Button

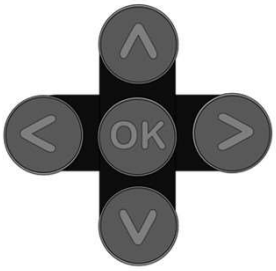
Changes the format of the answer

When an answer is not an integer value the calculator will display the answer in its standard setting.

To change this, press the format button.

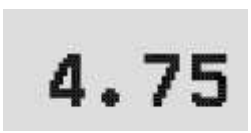
The next menu shows the format options.

Use the arrow keys followed by ok to chose the format you want.



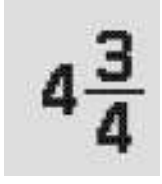
Standard

Decimal



Improper Fraction

Mixed Fraction

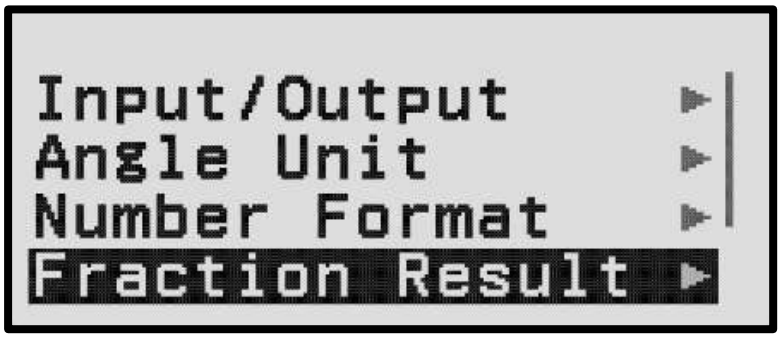


Settings

Changing the fraction result

Click settings

Use the right arrow key on Calc Settings



Use the right arrow key on Fraction Result

Chose mixed fraction or improper fraction

The fraction button

There are 2 ways to input a fraction into your calculator.

1) Press 

Then use the arrow keys to help you help you fill in the boxes.

2) Type the value of your numerator.

Now press 

Then use the arrow keys to move to the denominator and type that in.

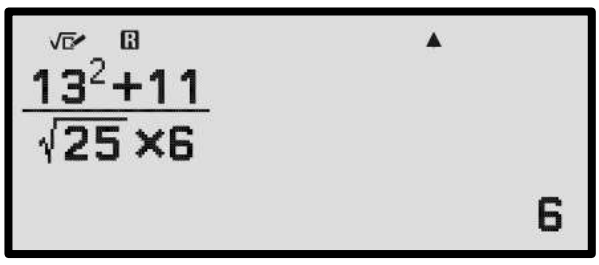
Using the fraction button

Simplifying

Type your fraction into the calculator and press execute.

Using for calculations

Press the fraction button and type in your calculation



Addition

Subtraction

Try these

calculations

Multiplication

Division

Changing an improper fraction to a mixed number

Converting an improper fraction to a mixed number

Type your fraction into the calculator and press execute.

Press FORMAT and chose mixed fraction from the list.

The Mixed Number button

(Find this symbol above the fraction button)

Press shift  and then the fraction button 

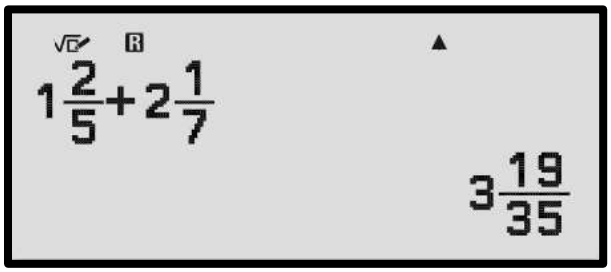
Converting a mixed number to an improper fraction

Press shift  and then the fraction button 

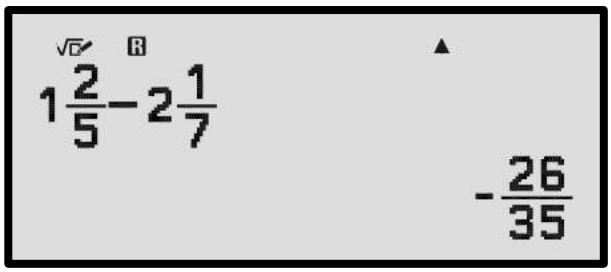
Fill the boxes to type in your mixed number

Press execute 

Addition

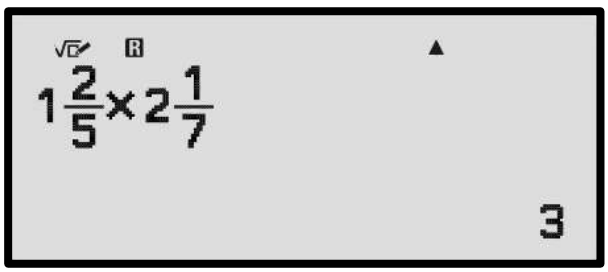


Subtraction

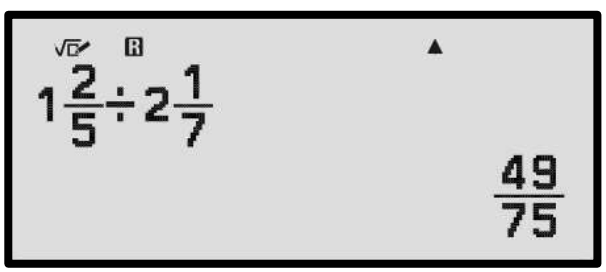


Try these calculations

Multiplication



Division



Converting between fractions and decimals

Converting a fraction to a decimal

Type your fraction into the calculator and press equals.

Press FORMAT

Then chose decimal.

Converting a decimal to a fraction

Type your decimal into the calculator and press execute.

Converting a decimal to a mixed number

Type your decimal into the calculator and press execute.

Press FORMAT

Then chose mixed fraction.

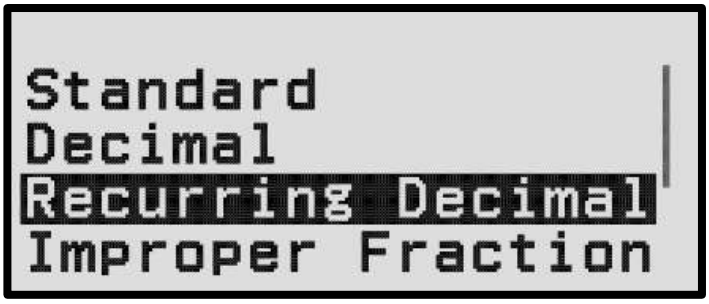
Converting between fractions and decimals

Converting a fraction to a recurring decimal

Type your fraction into the calculator and press execute.

Press FORMAT

If your fraction is recurring this will now show in the menu.

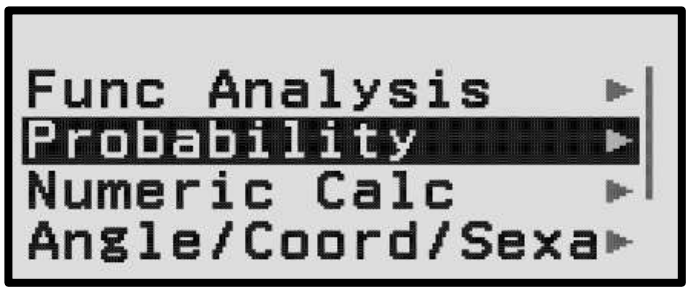


Click ok to get your answer.

The percentage button

To calculate 15% of 240

Type 15. Press  catalog button



Move down to probability and use the right arrow key to access next menu.

Click ok and this will put the % into your calculation.

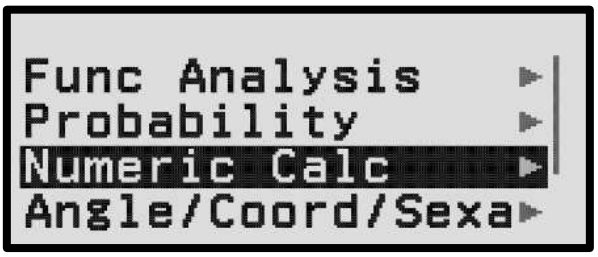
You can now complete the calculation.

Recurring decimals – 1 dp method 1

Convert $0.\dot{6}$ to a fraction

Type in your number up to the first recurring digit.

Press 



Scroll down to numeric calc and use right button to go to the next menu.

Click ok and the recurring decimal box will appear on the screen

Fill in the rest of the decimal and press execute.

Using the recurring decimal button

Convert a recurring decimal to a fraction

Type 0 . then press ⬆ $\blacksquare^2$

This brings up the recurring decimal box

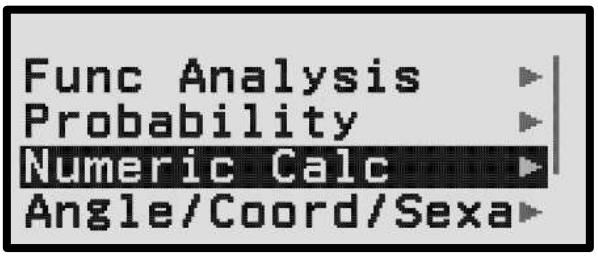
Now type the recurring decimals in the box and press execute.

Recurring decimals – 2 dp Method 1

Convert $0.\ddot{2}\ddot{8}$ to a fraction

Type in your number up to the first recurring digit.

Press 



Scroll down to numeric calc and use right button to go to the next menu.

Click ok and the recurring decimal box will appear on the screen

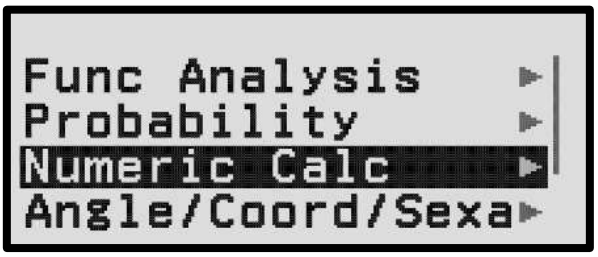
Fill in the rest of the decimal and press execute.

Recurring decimals – More than 2 dp (1)

Convert $0.\dot{4}1\dot{5}$ to a fraction

Type in your number up to the first recurring digit.

Press 



Scroll down to numeric calc and use right button to go to the next menu.

Click ok and the recurring decimal box will appear on the screen

Fill in the rest of the decimal and press execute.

Powers

Method 1 - Squared 4^2

Instead of writing 4×4

Type 4

then $\blacksquare^2$

Method 2 - Squared 4^2

Instead of writing 4×4

Type $\blacksquare^2$

then fill in the box 4

Any Power 7^5

Instead of writing $7 \times 7 \times 7 \times 7 \times 7$

Type 7

press $\blacksquare^{\square}$

then put a 5 in the box

Powers of negative numbers

Method 1 - Squared -4^2

Be careful!

Type (⬆ − 4)

then $\blacksquare^2$

Method 2 - Squared -4^2

Be careful!

Type (− 4)

then $\blacksquare^2$

Any Power -7^5

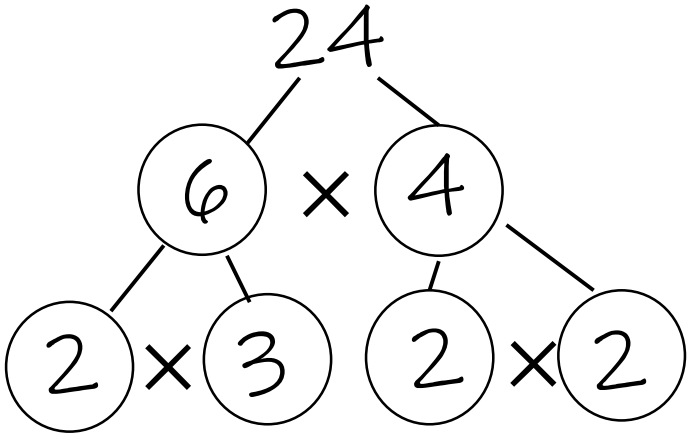
Type (− 7)

press $\blacksquare^{\square}$ then put a 5 in the box

Products of prime factors

Write 24 as products of prime factors.

Give your answer in index form



$= 2 \times 3 \times 2 \times 2$

$= 2^3 \times 3$

Type 24 and EXE Press FORMAT

The menu now has Prime Factor as an option.

Click ok to get answer.

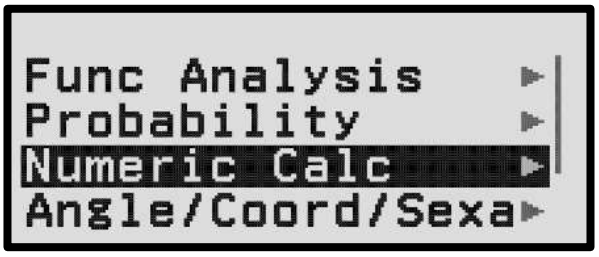
HCF (Highest Common Factor)

This is called GCD – Greatest Common Divisor

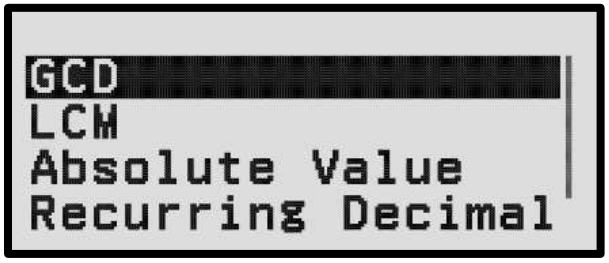
Find the HCF of 12 and 20

Press 

Choose Numeric Calc



The choose GCD

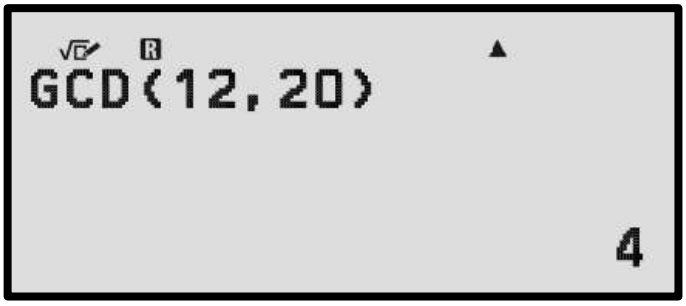


This brings up GCD(

Type 12, Press  , then type 20 

(To get the comma)

Press 



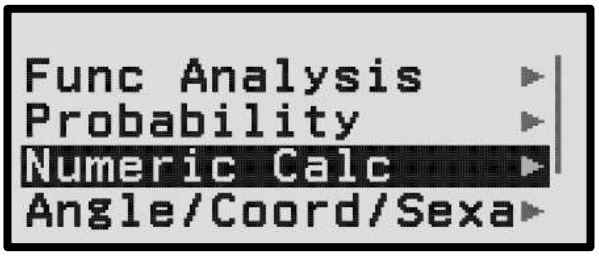
HCF (Using products of prime factors)

This is called GCD – Greatest Common Divisor

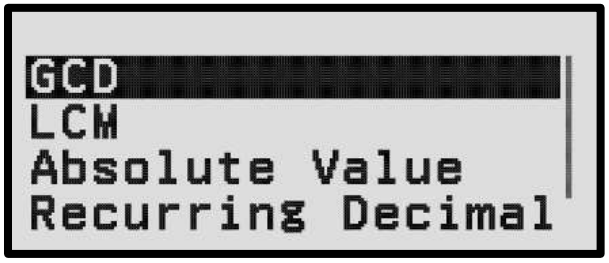
Find the HCF of $2^4 \times 3^4$ *and* $2^3 \times 3^3 \times 5$

Press 

Choose Numeric Calc



The choose GCD

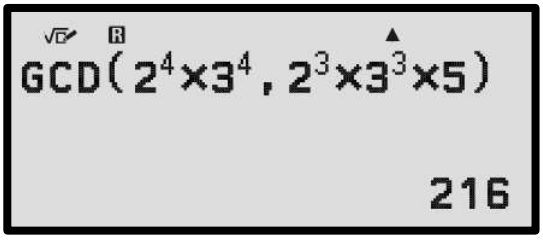


This brings up GCD(

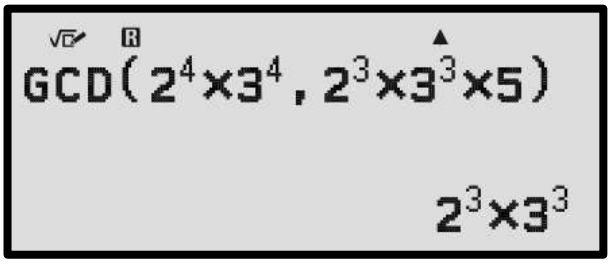
Type $2^4 \times 3^4$, Press  

(To get the comma)

then $2^3 \times 3^3 \times 5$  Press 



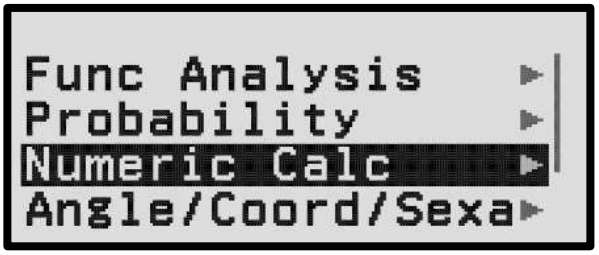
(Changed to prime factors)



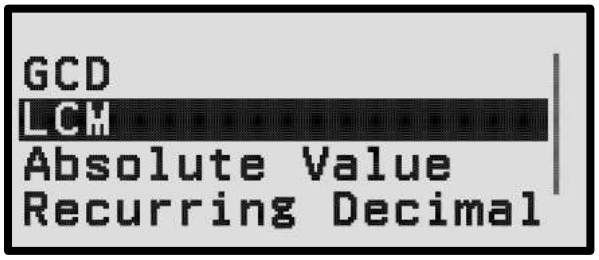
LCM (Lowest Common Multiple)

Find the LCM of 12 and 20

Press 



Choose Numeric Calc



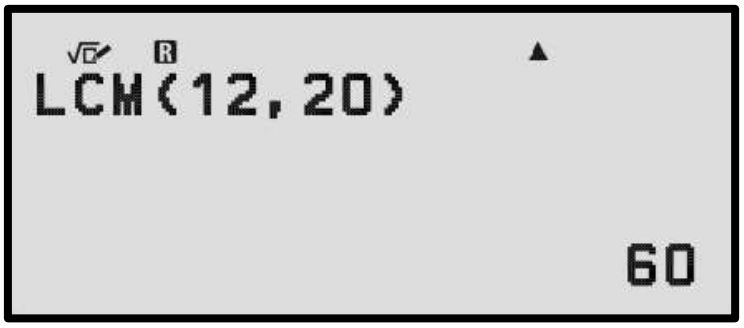
The choose LCM

This brings up LCM(

Type 12, Press   , then type 20 

(To get the comma)

Press 

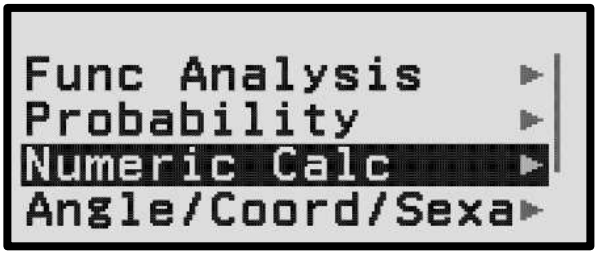


LCM (Using prime factors)

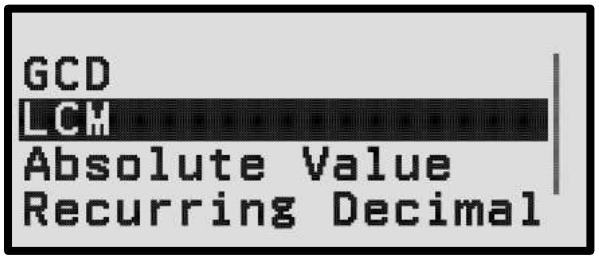
Find the LCM of $2^4 \times 3^4$ *and* $2^3 \times 3^3 \times 5$

Press 

Choose Numeric Calc



The choose LCM

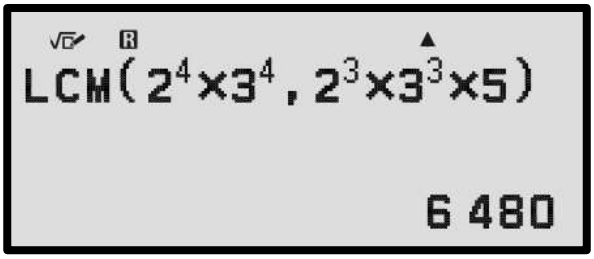


This brings up LCM(

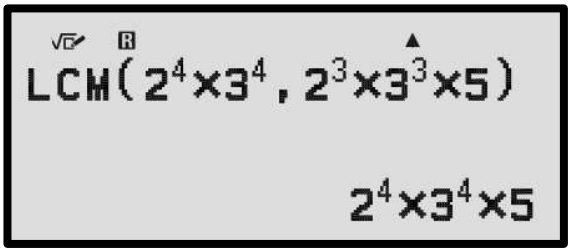
Type $2^4 \times 3^4$, Press  

(To get the comma)

then $2^3 \times 3^3 \times 5$  Press 

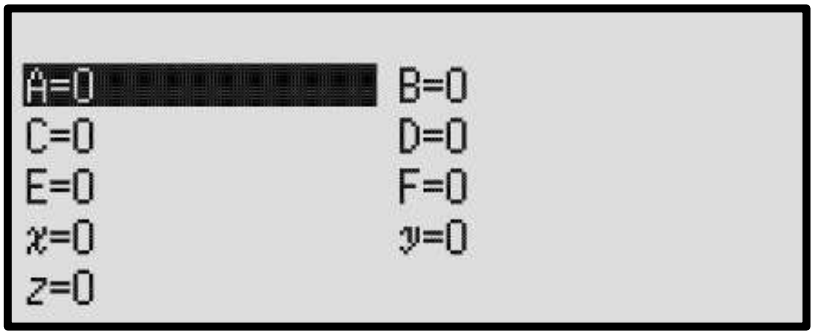


(Changed to prime factors)



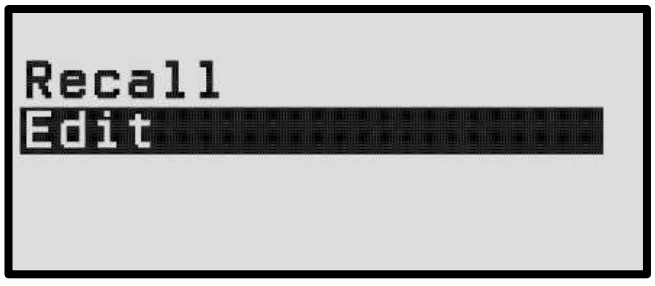
Substitution – Storing values

Press  to bring up this screen and store the value you want each variable to be.



Type in the value you want for the variable and press execute. Even if you press  the values will still be stored.

If the variable already has a value press execute to bring up this screen.



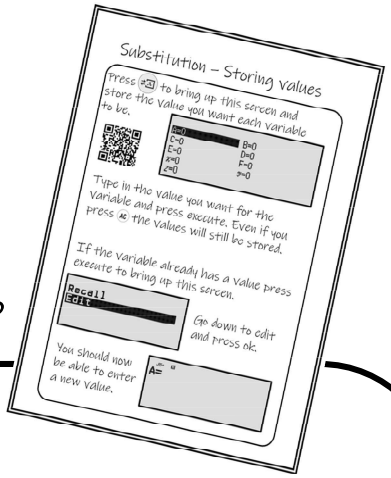
Go down to edit and press ok.

You should now be able to enter a new value.

Solving a quadratic equation using the formula

Use the quadratic formula to solve $5x^2 + 11x - 2 = 0$
Give your solutions to 2 decimal places.

Store the values of a, b and c in your calculator
see substitution – storing values



Press

Fill in the boxes. Remember to press shift to get to the variables.

$$\frac{-B+\sqrt{B^2-4AC}}{2A}$$

0.168857754

To quickly change the answer to a decimal press EXE

Press to replay and go back and change the + to -

$$\frac{-B-\sqrt{B^2-4AC}}{2A}$$

-2.368857754

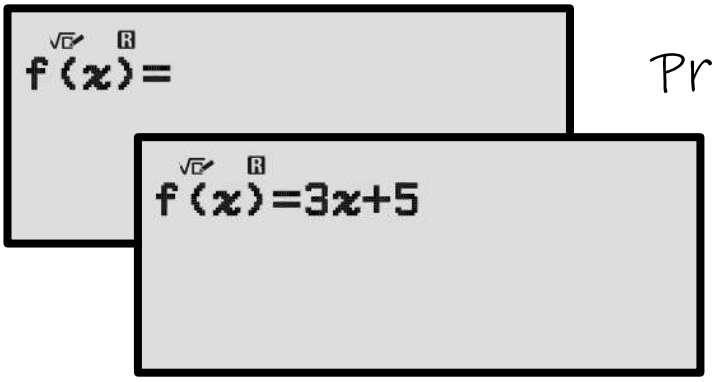
Functions

Define and use f(x)

Given $f(x) = 3x + 5$ Work out $f(8)$

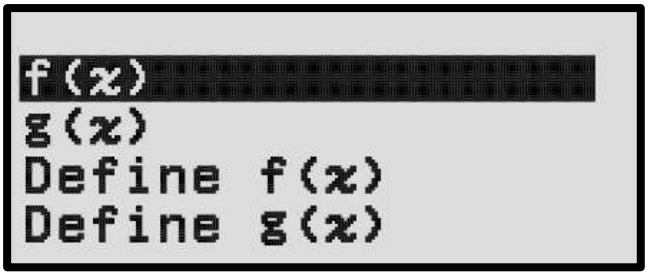
Press f(x)

Chose define f(x)



Press 3 x + 5

Press f(x) EXE



Press 8) EXE

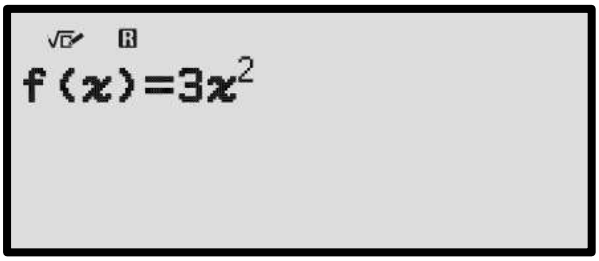
Composite Functions

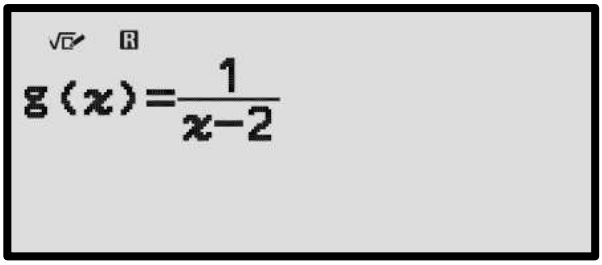
f and g are functions such that

$$f(x) = 3x^2 \quad \text{and} \quad g(x) = \frac{1}{x-2}$$

Find gf(4).
Give your answer as a fraction.

Define f(x) and g(x)





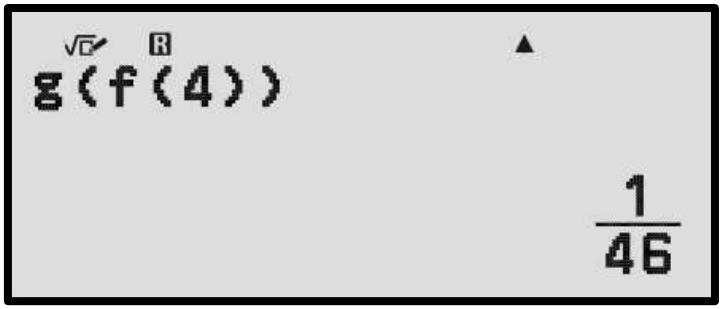
Press f(x)

Chose g(x)

Press f(x)

Chose f(x)

Press 4)) EXE



Plotting a Linear Graph

Complete the table of values for $y = 3x + 2$

x	−2	−1	0	1	2
y		−1		5	

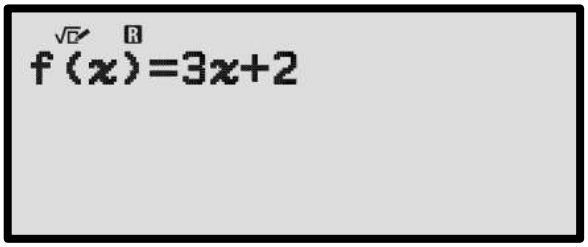
1) Chose table from the home menu.

2) Click tools (ooo) and select table range.

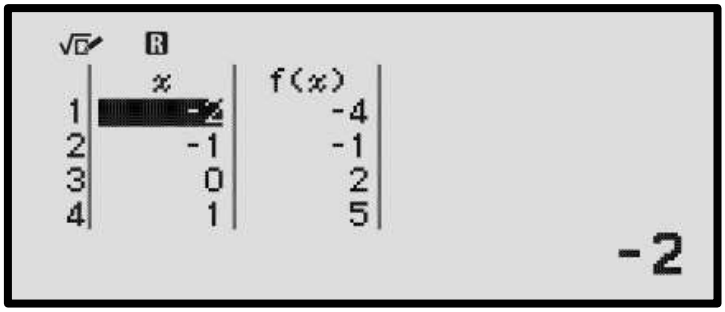
3)Complete the next screen to match your values. Press (EXE) after each one. Then execute.

4) Click tools (ooo) and select define f(x)/g(x).

Define the function.



The calculator displays a table of values which you can scroll through.

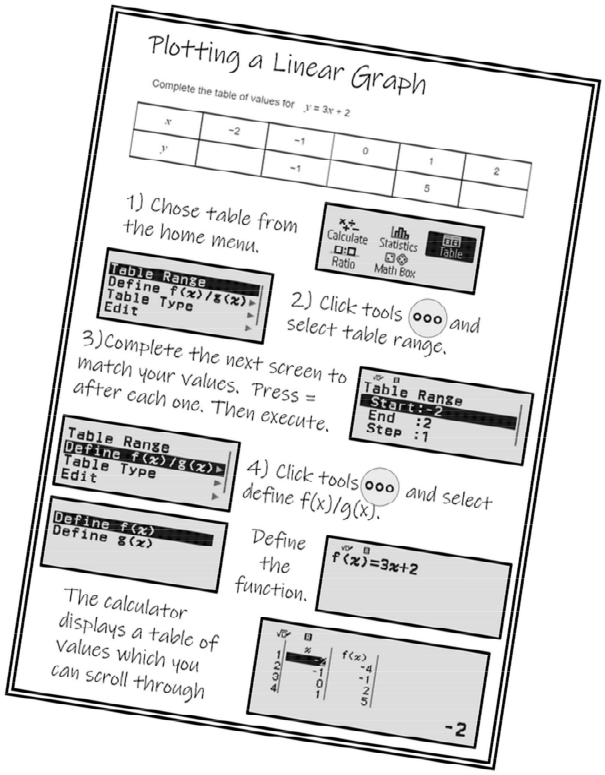


Plotting a Quadratic Graph

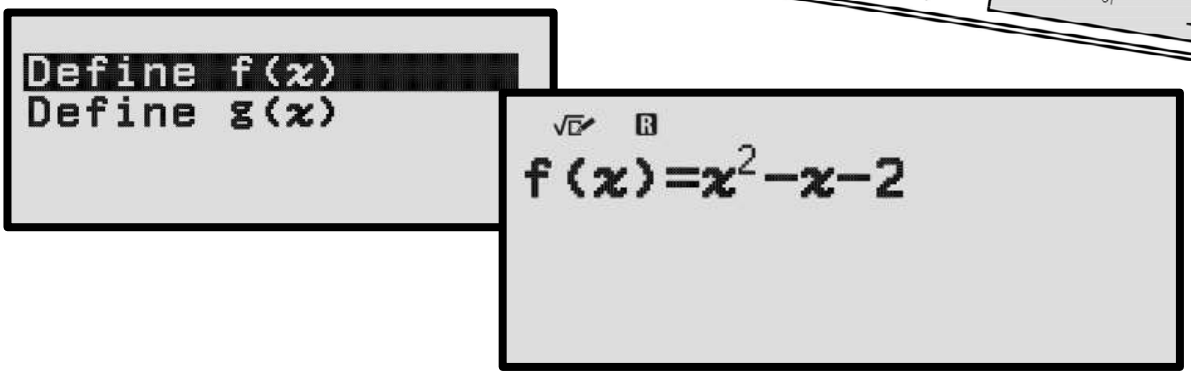
Complete the table of values for $y = x^2 - x - 2$

x	−2	−1	0	1	2	3
y			−2	−2		4

1) Setup your table in the same as when setting up a table for a linear graph.



2) Define your function



The calculator displays a table of values which you can scroll through.

Time

Now in blue on + button

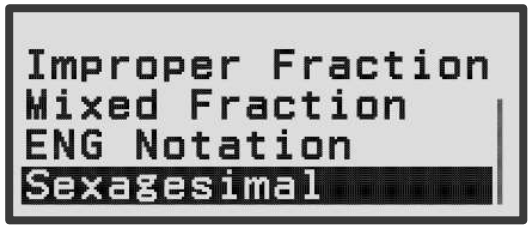
Hours Minutes Seconds

Convert $2\frac{1}{4}$ hours to hours and minutes

Type in mixed number and press EXE

Method 1

Press FORMAT and chose sexagesimal.



Method 2

Press ⬆ +

Both answers read 2 hours, 15 minutes, 0 seconds

Time

Now in blue on + button

Hours Minutes Seconds

Convert 575 minutes to hours and minutes

Type 0 ⬆ + This represents 0 hours

Type 5 7 5 ⬆ + This represents 575 minutes

If there are 0 seconds you do not need to put these in.

Press EXE

This automatically changes the value to hours and minutes

The answer reads 9 hours, 35 minutes, 0 seconds

Time

Now in blue on + button

Hours Minutes Seconds

Convert 3 hours 24 minutes to hours

Type 3 ⬆ + This represents 3 hours

Type 2 4 ⬆ + This represents 24 minutes

If there are 0 seconds you do not need to put these in.

Press EXE

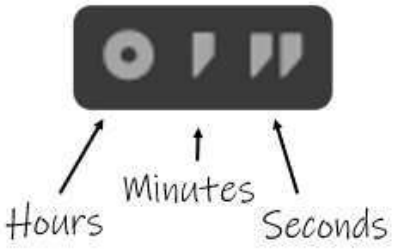
Press FORMAT and chose the format you want

Decimal

Improper fraction

Mixed number

Time calculations



Here is the bus timetable.

Newcastle	0915	0945	1015
Killingworth	0944	1014	1044
Water park	1018	1048	1118

How long does their bus take from Killingworth to the water park?

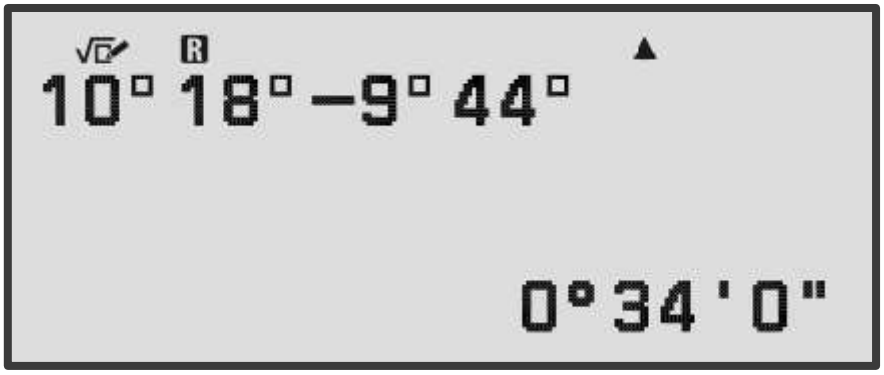
For **1018** type

10 ⬆ + 18 ⬆ +

This represents 10 hours and 18 minutes

And you want to subtract the starting time of **0944**

– 9 ⬆ + 44 ⬆ + EXE



The calculator shows 0 hours, 34 minutes and 0 seconds

Average Speed

The direct route between two airports *A* and *B* is 450 km.

An aircraft leaves *A* at 09.30

It arrives at *B* at 11.00

Work out the average speed of the aircraft.

Assume the aircraft travelled the direct route.

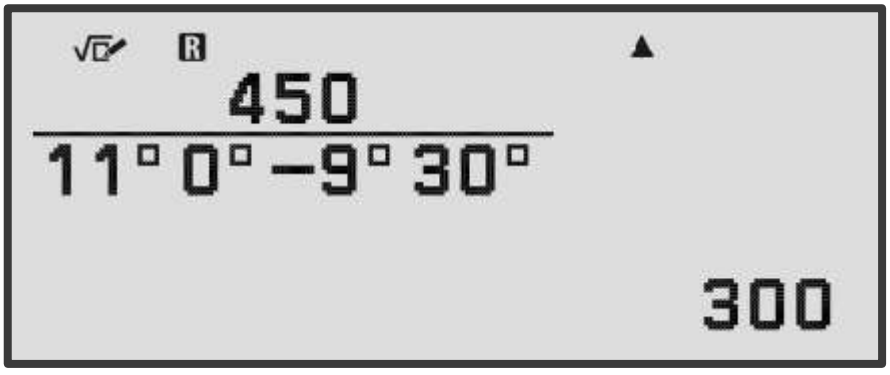
$$speed = \frac{Distance}{Time}$$

1) Press 

2)Fill the distance of 450 in the numerator

3)Fill the denominator with the time calculation

11 ⬆ + 0 ⬆ + − 9 ⬆ + 30 ⬆ + EXE



Average speed = 300Km/h

Using the ANS button

Technique 1 – Using the last answer as the first part of your next calculation

1) Work out the answer to the first part of your calculation

DO NOT CLEAR

2) Press the operation for the next calculation.

Technique 2 – Using the last answer as the second part of your next calculation

1) Work out the answer to the first part of your calculation

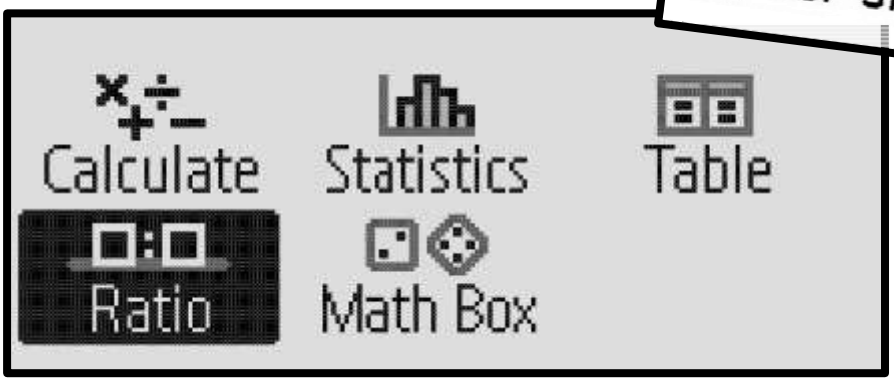
DO NOT CLEAR

2) Type in the first part of the next calculation

press (Ans) button to use your last answer.

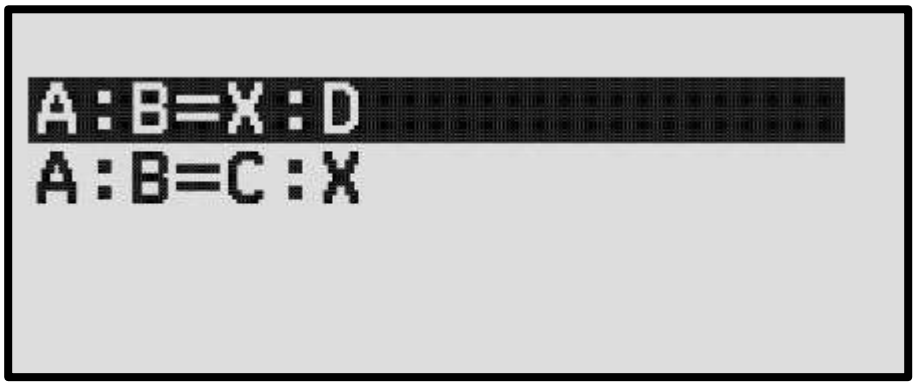
Finding one part of a ratio from another part (1)

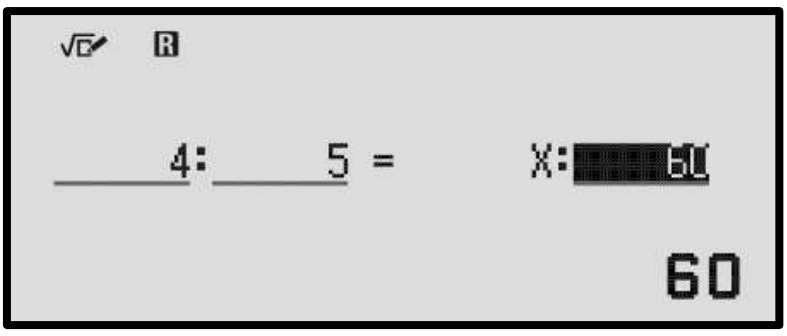
A packet of sweets is shared in the ratio 4 : 5. If the larger share is 60 sweets, how much is the smaller share?



Select ratio from the home screen

Select A:B=X:D



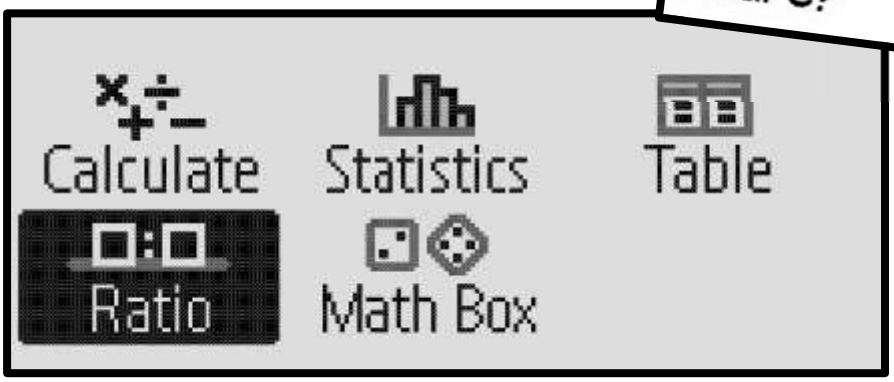


Change the first ratio to 4:5 and the D to 60
Type each number and press EXE each time

Press EXE again to get the value x.

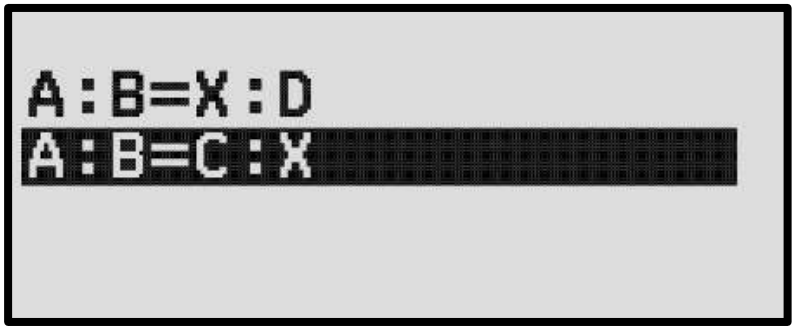
Finding one part of a ratio from another part (2)

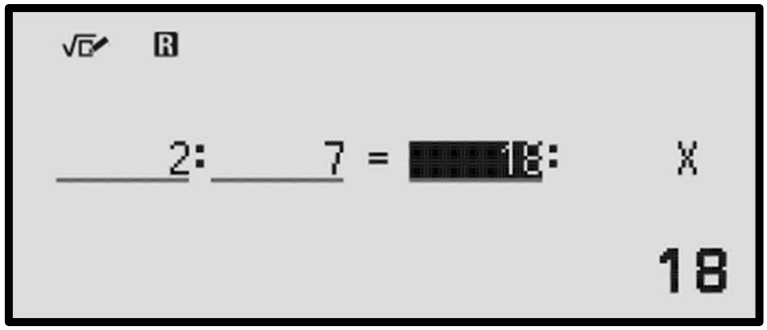
A sum of money is shared in the ratio 2 : 7. If the smaller sum of money is £18, how much is the larger share?



Select ratio from the home screen

Select A:B=C:X



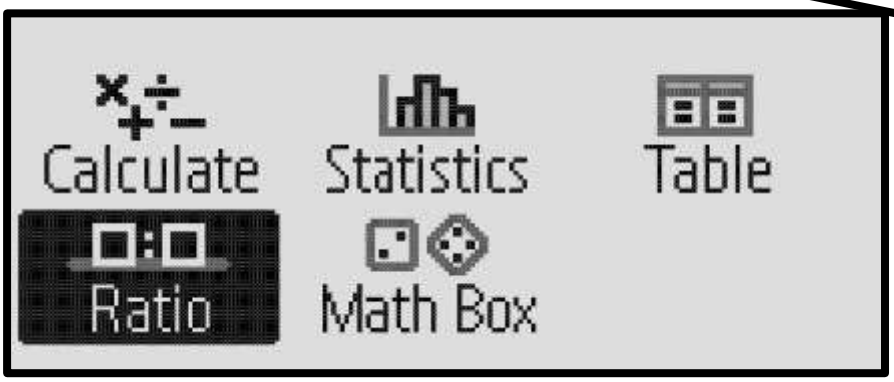


Change the first ratio to 2:7 and the C to 18 Type each number and press EXE each time

Press EXE again to get the value x.

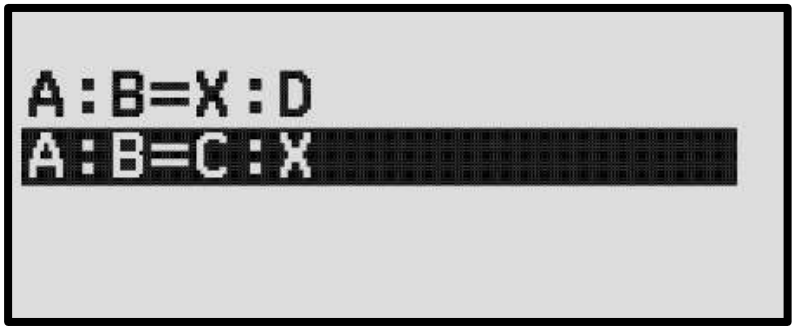
Writing a ratio in the form $1:n$

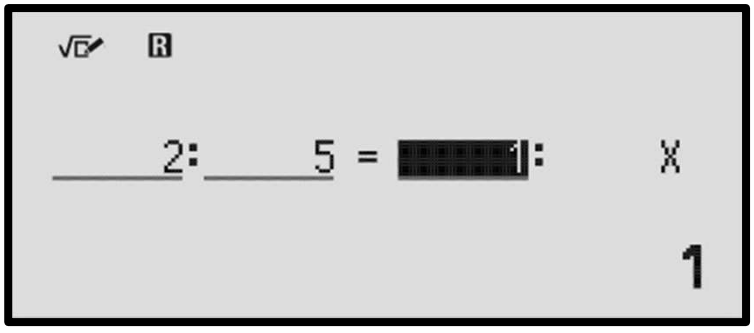
Write the ratio $2:5$ in the form $1:n$



Select ratio from the home screen

Select A:B=C:X



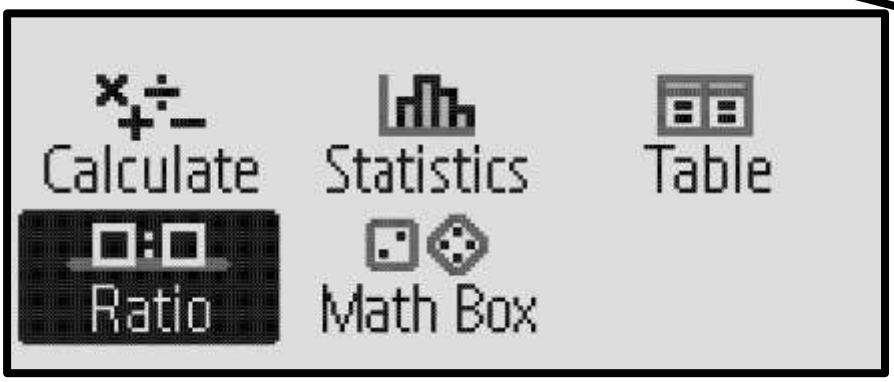


Change the first ratio to 2:5 and the C to 1
Type each number and press EXE each time

Press EXE again to get the value x.

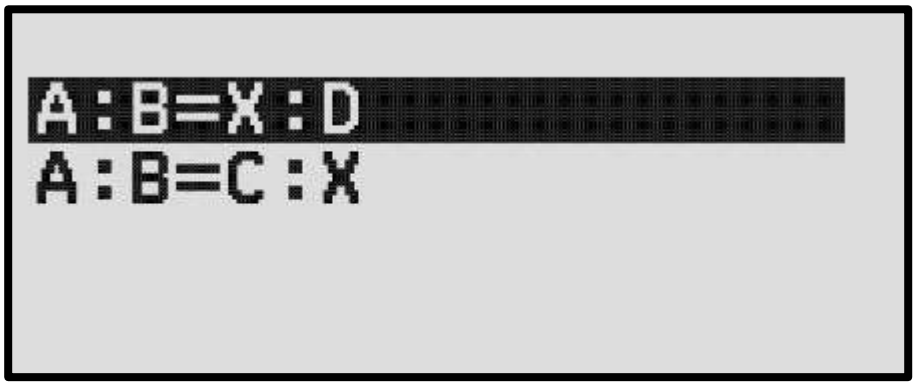
Writing a ratio in the form $n:1$

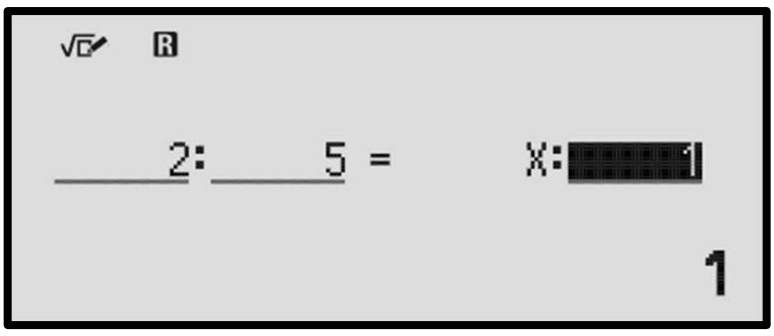
Write the ratio 2:5 in the form $n:1$



Select ratio from the home screen

Select A:B=X:D



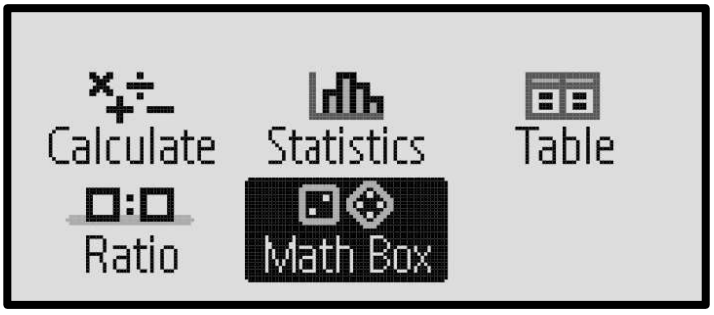


Change the first ratio to 2:5 and the D to 1
Type each number and press EXE each time

Press EXE again to get the value x.

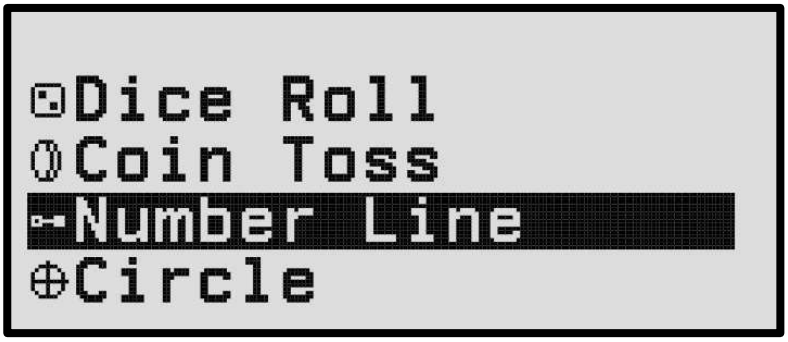
Inequalities on a number line

Part 1: Where to find inequalities on a number line.

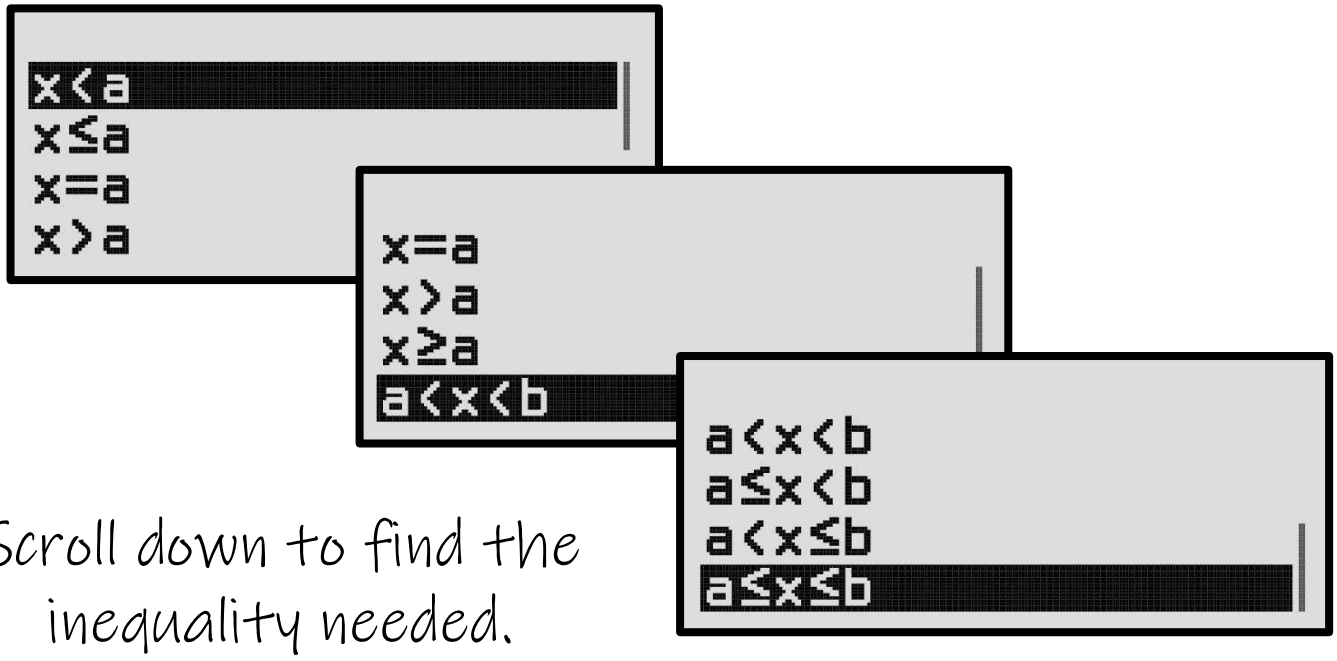


Select math box from the home screen

Select Number Line



This gives you the option to put up to 3 lines on your diagram. Click EXE to select A.

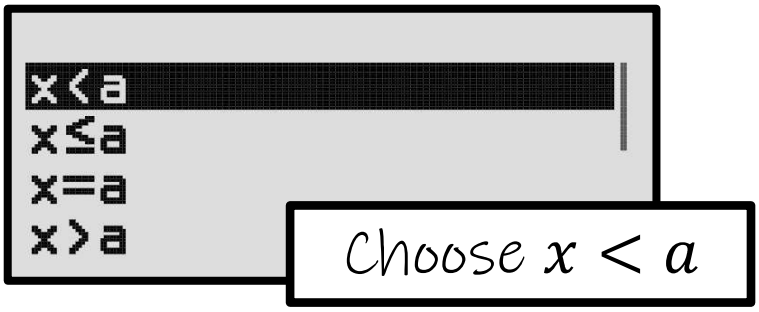


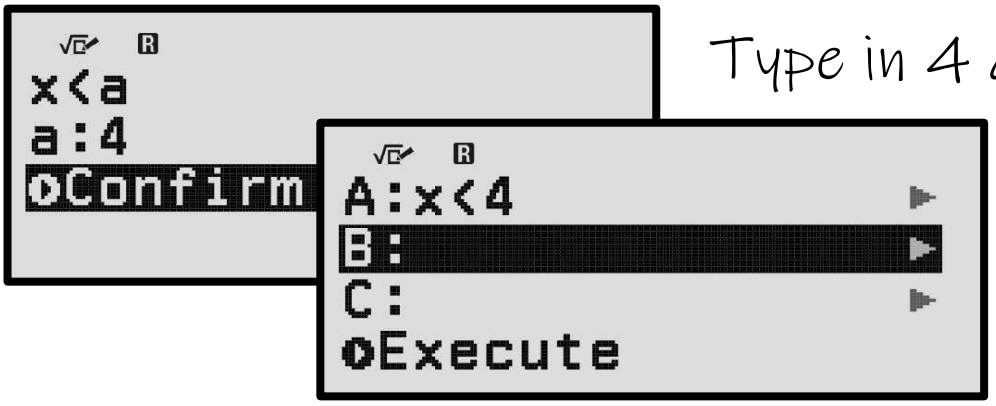
Scroll down to find the inequality needed.

Inequalities on a number line

Part 2: Single ended

Example
Draw $x < 4$

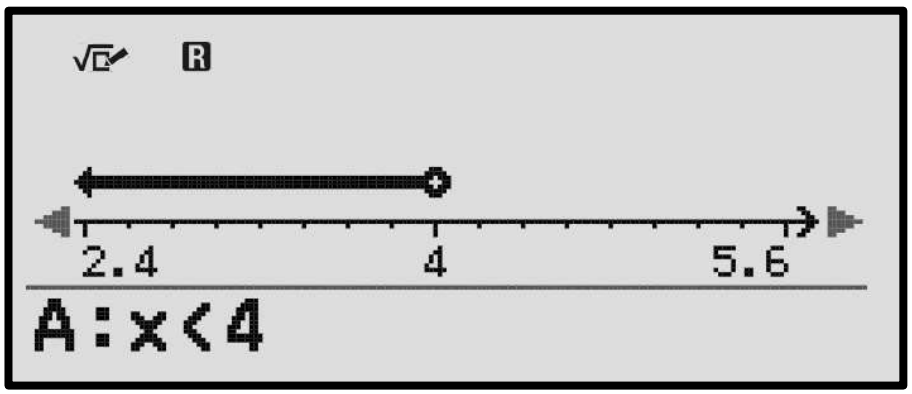




Type in 4 and press EXE

Press EXE again on confirm.

If more lines are needed add them in slot B and C.
If no more lines are needed, scroll down to execute.



All single ended inequalities work the same way.

Inequalities on a number line

Part 3: Double ended

Example
Draw
$2 \leq x \leq 4$

Choose $a \leq x \leq b$

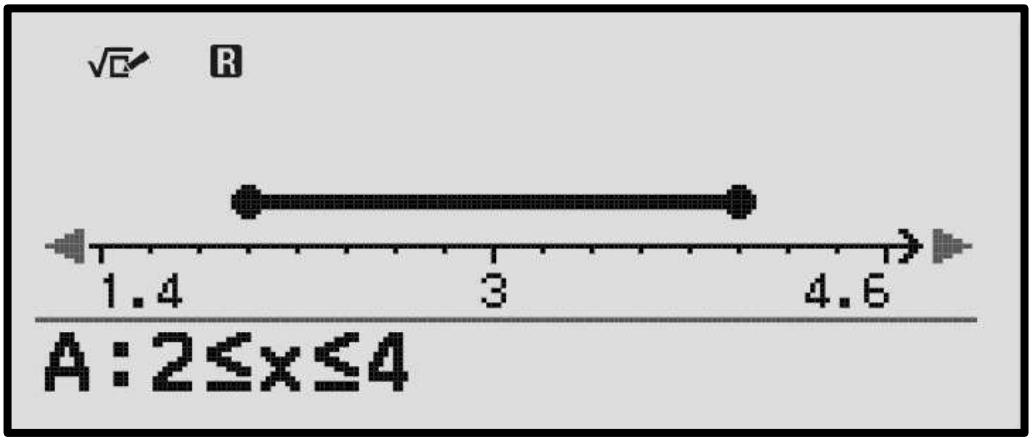
Type in 2 and press EXE

Type in 4 and press EXE

Press EXE again on confirm.

If more lines are needed add them in slot B and C.

If no more lines are needed, scroll down to execute.



All double ended inequalities work the same way.

Settings

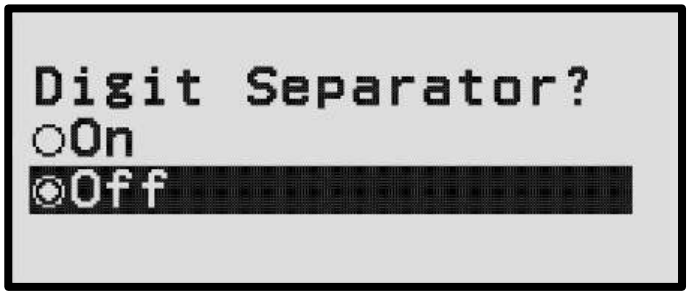
Digit Separator

Click settings

Use the right arrow key on Calc Settings

Scroll down to Digit Separator and then use right arrow key

Chose on or off (notice there are no commas)

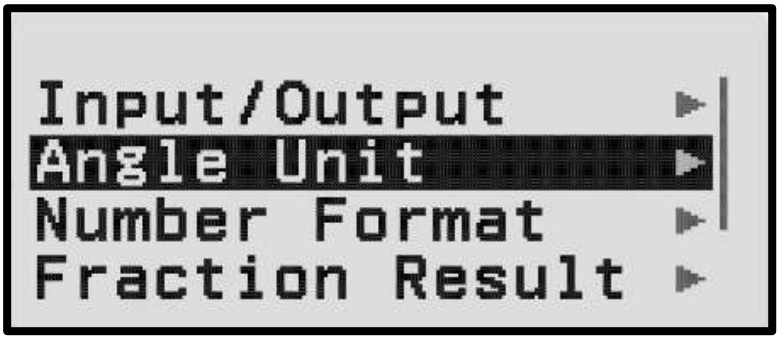


Settings

Changing the angle unit

Click settings

Use the right arrow key on Calc Settings



Use the right arrow key on Angle Unit

Chose the angle unit you want