Using Casio fx-82AU



Math Calculations

Learning Skills

Introduction:

This sheet will teach you how to use the Casio fx-82AU calculator to perform basic mathematical operations. Some of the keys that are available for basic calculations on your calculator are explained here. See also our handout for statistical functions. Any further queries please contact Student Central.

This sheet will teach you to:

- Use normal calculator mode
- Recognise basic keys you need to be familiar with
- Calculate using trig keys
- Put information into memory
- Perform basic calculations

1. Location of keys



fx-82AU, shown with the location of some keys mentioned in the text

2. Calculator Modes

Your calculator can be put into several different modes. Each mode has its own purpose. The 82AU has two modes that allow you to work out calculations like the ones that we are about to look at here: Mth I O and Line I O

For simple calculations Line I O mode is the simpler to use.

To put your calculator into Line I O mode press

SHIFT MODE SETUP

A small D will appear on the top of the screen.

3. Keys to be familiar with



2

Example 3.1:

-3 + 4				
Calculator steps:	(-)	3	+ 4	

Answer = 1



These are the brackets keys and are used in the same order as they appear in a sum.



This is the key that allows you to work with fractions.

Example 3.2: Con a. $\frac{1}{5} + \frac{3}{7}$ Calculator steps: Image: Constraint of the fraction o

Conversion to decimal

The $S \Leftrightarrow D$ key which is next to the M+ key on the bottom function row allows you to covert the fraction answer to a decimal and vice versa



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Example 3.5:



Calculator steps: 8 x 4 9

Remember to close the bracket after entering the power



A logarithm is an alternative way of writing a number. It is particularly useful when working with large numbers.

Example 3.6:

log

log 600 090

Calculator steps:

remember to close the bracket after entering the number

Answer = 5.77821639



This key is next to the log key. You may encounter either of these functions in chemistry or physics subjects. They both involve the base number e, which has an approximate value of 2.7183. The log key mentioned above, as well as our everyday number calculations, revolve around a base number of 10.

Example 3.7:



Answer = 4023.872394



This is the exponent key. It is used when you need to enter a number into the calculator in scientific notation.

Example 3.8:	Note
$\frac{1.34 \times 10^{5}}{2.68 \times 10^{2}}$ Calculator steps: 1 • 3 4 × 10 ^x 5 ÷ 2 • 6 8 × 10 ^x 2 ⊨ Answer = 500	1.34×10^5 is the scientific notation form of the number 134 000. The exponent key is replacing the \times 10. Only the decimal number and the power need to be entered

Shares the key with the exponent function. To use π press the shift key followed by the exponent key:



Special note:

 π

Work out: $1 \div 630$

Answer: 0.001587301



Your calculator will now give you all answers in the correct decimal format

4. Memory Keys

To enter a number into the memory:

Example 4.1:

To enter 852.36 in the memory

			STO	
Calculator steps:	852•33	SHIFT	RCL	M+

To recall or use the number stored in the memory:

Example 4.2:

 $78\times number\ stored$

Calculator steps:	78×	RCL	M+	=
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Note
An M will appear on the display
when a number is stored in the

memory.

Answer = 66 484.08

To clear the memory

			SIO		
Calculator steps:	0	SHIFT	RCL	M+	AC

5. Trigonometric keys

To find a ratio given an angle: the angle may be given as degrees or as radians

To swap between degrees and radian mode:

Calculator steps: SHIFT

SHIFTMODE SETUP3SHIFTMODE SETUP4

for degrees mode

for radians mode

Example 5.1:

Sin 52°

Make sure your calculator is in degrees mode

Calculator steps: sin 5 2 1

remember to close the bracket

Answer = 0.7880107536

Example 5.2:

Tan
$$\frac{3\pi}{4}$$

Make sure your calculator is in radian mode

Calculator steps:

tan 3 X SHIFT ×10^x ÷ 4 1) =

remember to close the bracket

Answer = -1

6. Review exercise set 1

Use your calculator to find the value of the following.

- a. $18 \cdot 36^2$
- b. log 345
- c. $\sqrt{253461}$
- d. $5 \cdot 78^4$
- e. $\frac{2}{3} + \frac{5}{12} + 1\frac{1}{8}$
- f. $(-283)^3$
- g. $\cos 26^{\circ}$

7. Performing calculations

Scientific calculators have an in-built order of operations. This means that the calculator will automatically work out operations in questions following the order of operation rules. Using an equal sign within a calculation or using brackets may be necessary at times in order to get the correct solution. Also remember that when using some function keys you need to close a bracket.

Example 7.1:

 $2 + 3 \times 4$

The calculator will automatically multiply before adding.

Calculator steps: 2 + 3 4 =

Answer = 14

Example 7.2:

(2 + 3) × 4

Use the brackets on your calculator or use the equal sign after the 3 to force the addition first.

Example 7.3:

$$\frac{1}{25+34}$$

Calculator steps: 1 ⋮ [25 + 34] =

Answer = 0.016949152

You must use brackets around the bottom line to total the numbers

Example 7.4

$$\frac{5}{\sqrt{13+56}}$$

 Calculator steps:
 5
 1
 3
 +
 5
 6
 1
 =

Answer =0.6019292654

$$\frac{16\!\cdot\!46\!-\!18\!\cdot\!37}{5\!\cdot\!27}$$

Calculator steps: 16 • 46 ↓ 18 • 37 ↓ 5 • 27 ↓

Answer = -0.362428842

Example 7.6

$$523 - \frac{27^2}{9}$$

Calculator steps: 523 ± 27 $x^2 \pm 9$

Answer = 442

Example 7.7

 $\log 7892 \times 52^2$

Calculator steps: \log 7 8 9 2 k 5 2 x^2

Answer = 10537.99386

Example 7.8

 $\cos 49^{\circ} \times 102$

Calculator steps: cos 4 9 1 x 1 0 2 =

Answer = 66.91802096

8. Review exercise set 2

Use your calculator to find the value of the following.

a.
$$48^2 + 75^3$$

b.
$$\sqrt{305 - 156}$$

c.
$$\frac{16\cdot 4}{8\cdot 12 - 5\cdot 62}$$

d. Add together -5, -3, -1, 4, 6, 8 and 12 then square the total.

e.
$$\frac{165}{\sqrt{15-8\cdot81}}$$

f. $\log 59 \times 23 \cdot 123 \div (142 \cdot 34 - 56 \cdot 521)$

g.
$$\frac{8674 - 9634}{654 \cdot 2}$$

h. $\frac{(5 \cdot 4 - 4 \cdot 7)^3}{12}$

i.
$$\tan 69^{\circ} \times 5.2$$

$$j. \frac{1}{\begin{pmatrix} 15 \cdot 34 \\ \sqrt{6} \end{pmatrix}}$$

9. Answers to review exercises

Set 1

- a. 337.0896
- b. 2.537819095
- c. 503.4491037
- d. 1116.121191

e.
$$\frac{29}{12}$$

- f. -22 665 187
- g. 0.8987940463

Set 2

- a. 424 179
- b. 12.20655562
- c. 6.56
- d. 81
- e. 66.31909936
- f. 0.4771368935
- g. -1.467441149
- h. 0.02858333
- i. 13.54646314
- j. 0.159679905

10. For more information

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