

Technical Maths Webinar with the Sharp EL-W506T & EL-W506

SHARP

Plan of Action

- Introduction
- Basics
 - Where to download the simulator
 - Cool new functions
 - Shortcut for Class marks
- Maths stuff
 - Recurring numbers/ decimals
 - Surds, Exponents and Logs
 - Binary Numbers
 - Conversions between units and standard measurements
 - And degrees and radians
 - Factorisation
 - Equation solver
 - Complex numbers
 - Calculus

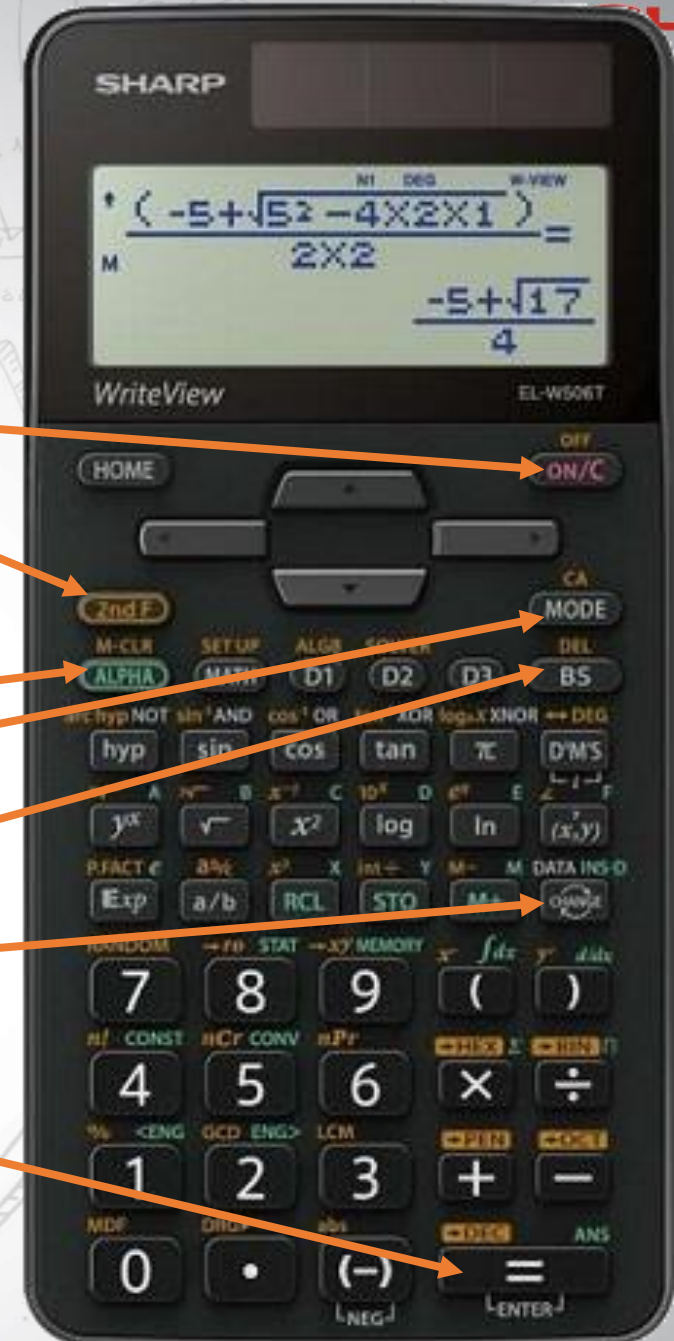
Calculator Introduction

- 640 Functions
- Upgraded for the CAPS and AP maths curriculum
- Amazing new functions include a multiplicand function, highest common factor, lowest common multiple and many more!




Calculator Basics


- Turn the calculator on
- 2nd Function – used to activate orange functions
 - Turn the calculator off by pressing 2nd F and ON
- ALPHA – used to activate teal functions
- Mode – change to different modes
- BS – backspace – to delete something.
- Change – change between mixed, improper and decimal answers.
- Equals – to find an answer or used as enter.



Modes

- Press 
- 0: Normal
 - Fractions, integers, probability, trigonometry and much more
- 1: Stat
 - Single data, linear regression and more
- 2: Table
 - Functions but can also be used for teaching finance and factorising
- 3: Complex
 - For doing complex number calculations
- 4: Equation
 - Solving various equations – linear, quadratic and cubic.

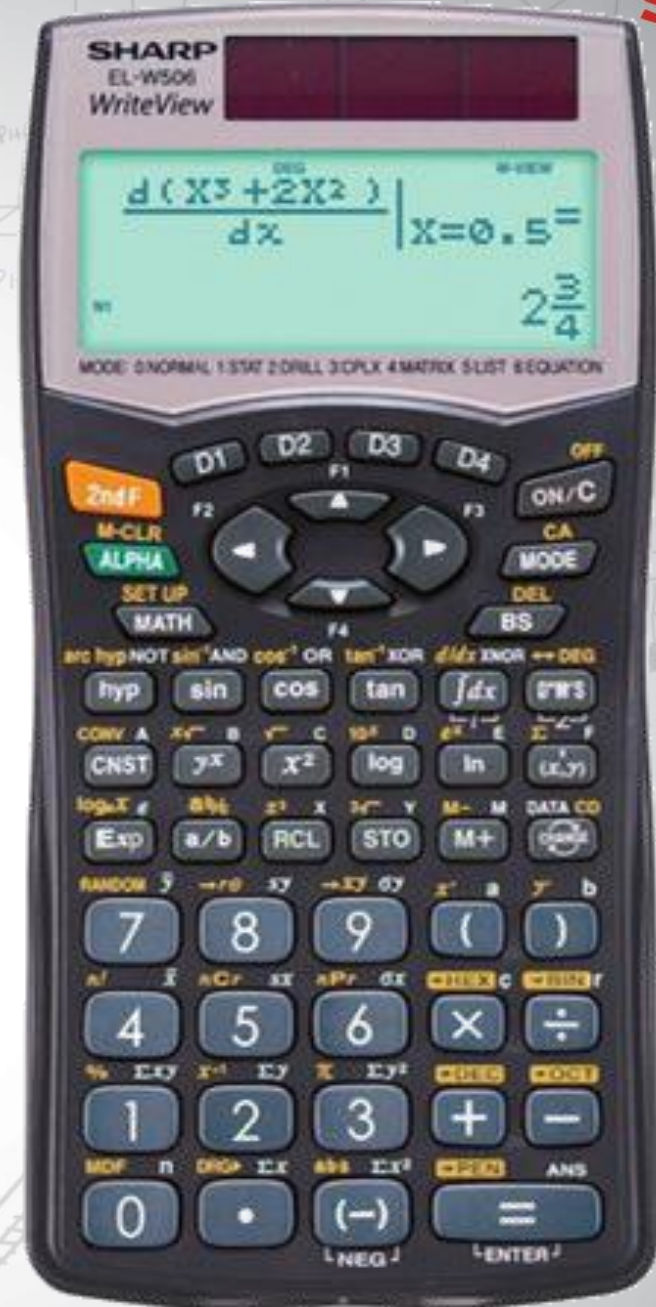


- Press 
- 5: Matrix
 - Up to 4 x 4 matrices
- 6: Vector
 - Up to 3 elements, solve cross and dot products
- 7: Distribution
 - Various statistical distributions – normal, binomial and Poisson.
- 8: Drill
 - Practice basic mental maths.
 - Great for grade 8 and 9 students



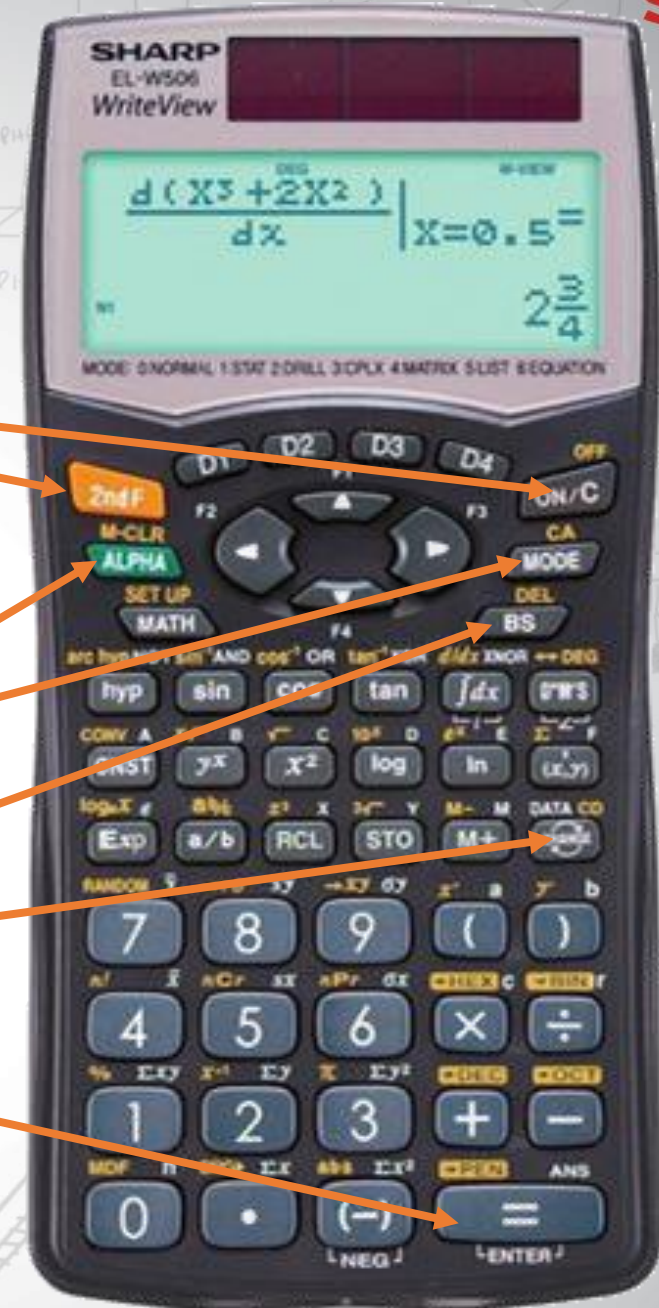
Calculator Introduction

- 556 Functions
- Displays equations in writeview (i.e. just like the textbook).
- Solves equations
- Integrates and differentiates
- Does 44 different conversions and has 52 constants



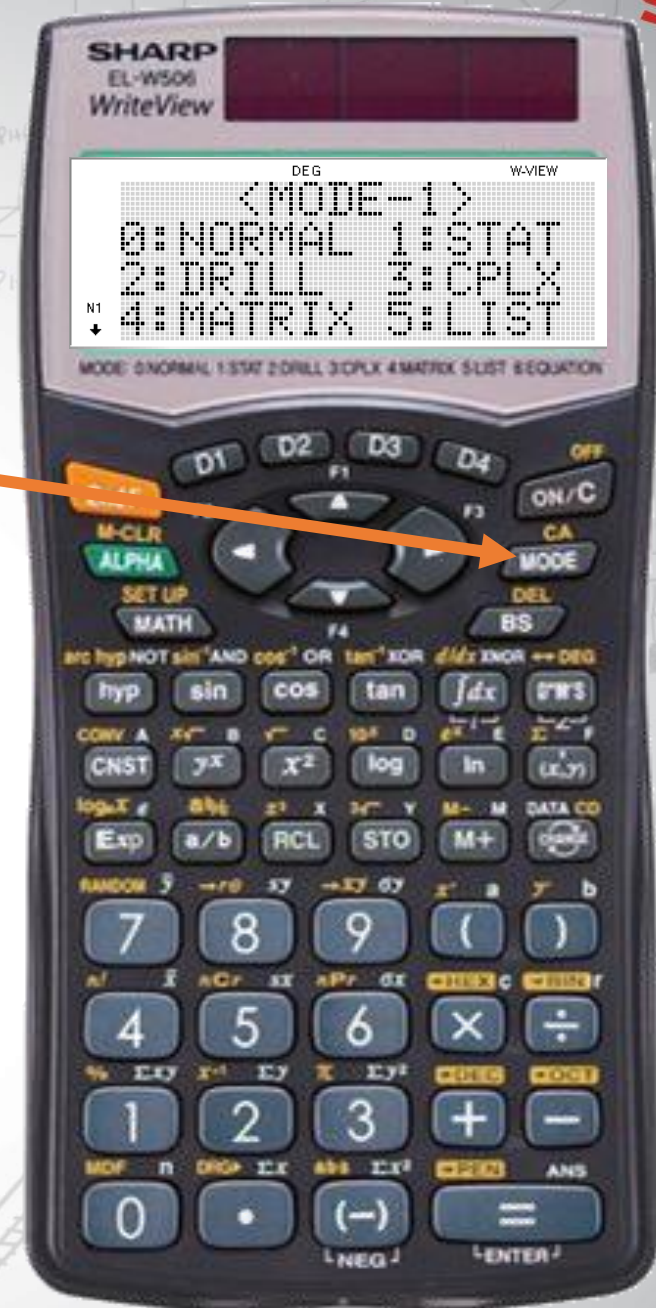
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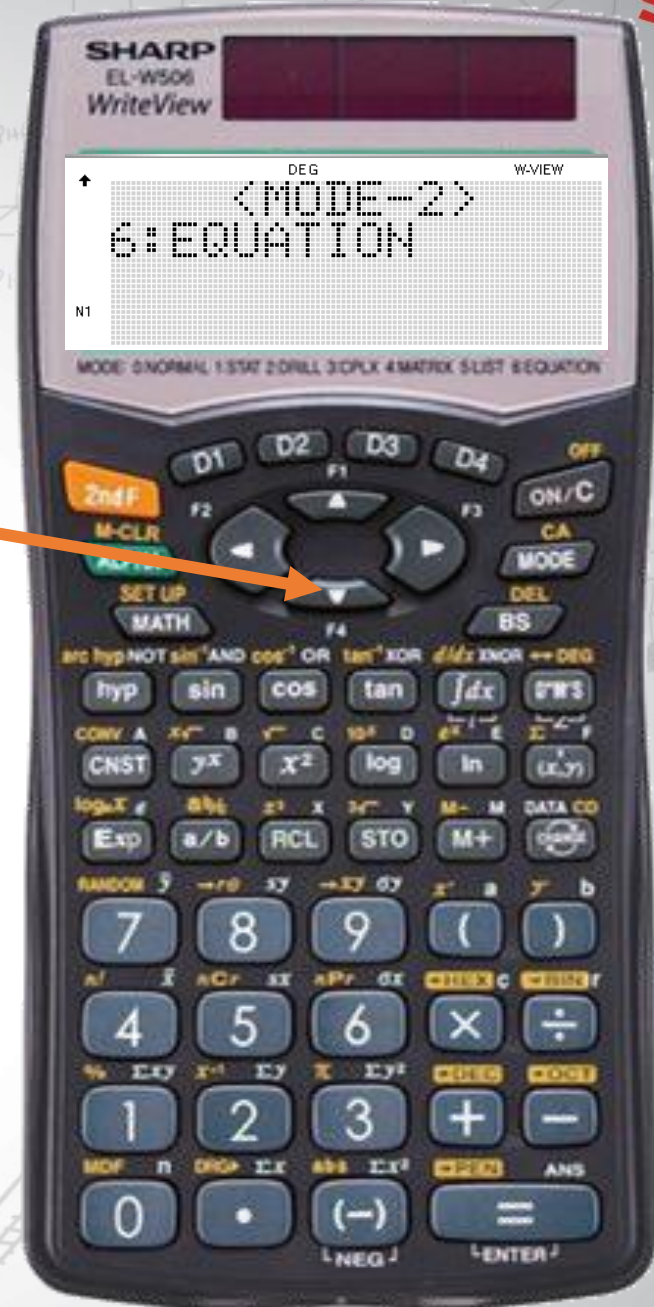


Modes

- Press **MODE**
- 0: Normal
 - Fractions, integers, probability, trigonometry and much more
- 1: Stat
 - Single data, linear regression and second common differences.
- 2: Drill
 - Practice basic mental maths.
 - Great for grade 8 and 9 students
- 3: Complex
 - For doing complex number calculations
- 4: Matrix
 - Up to 4 x 4 matrices
- 5: List
 - Up to 3 elements, solve cross and dot products



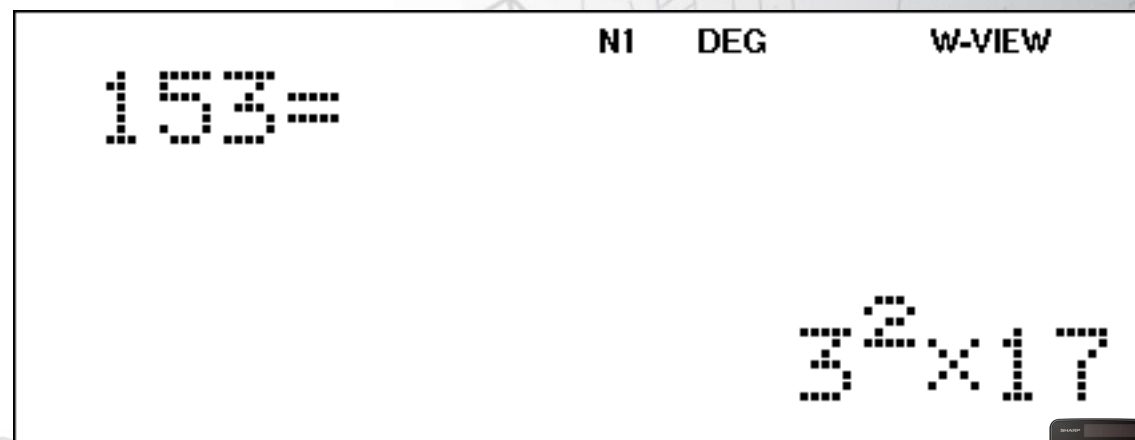
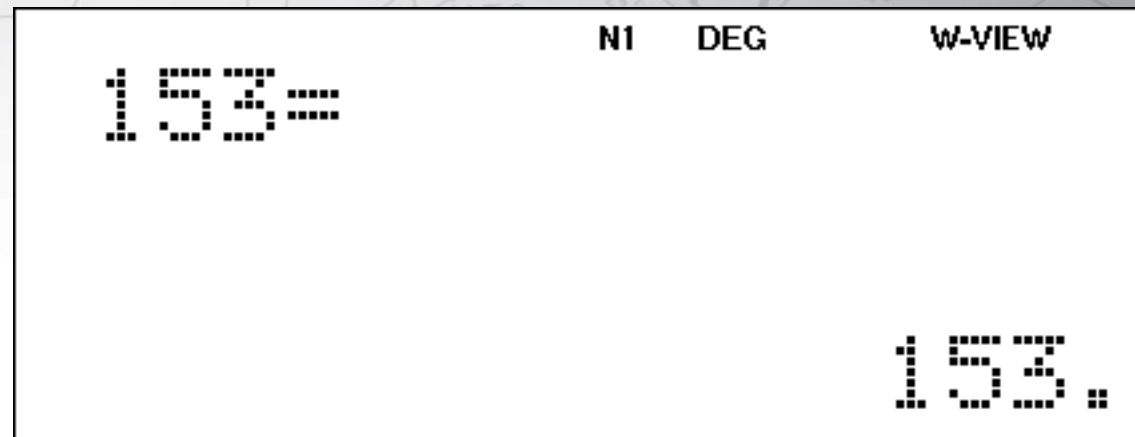
- Press 
- 6: Equation
 - Solving various equations – linear, quadratic and cubic.



Prime Factorization

- Press **2ndF** **Exp** to find the prime factors of a number.
- E.g. find the prime factors of 153.

- Press **1** **5** **3** **=**
- Now press **2ndF** **Exp**

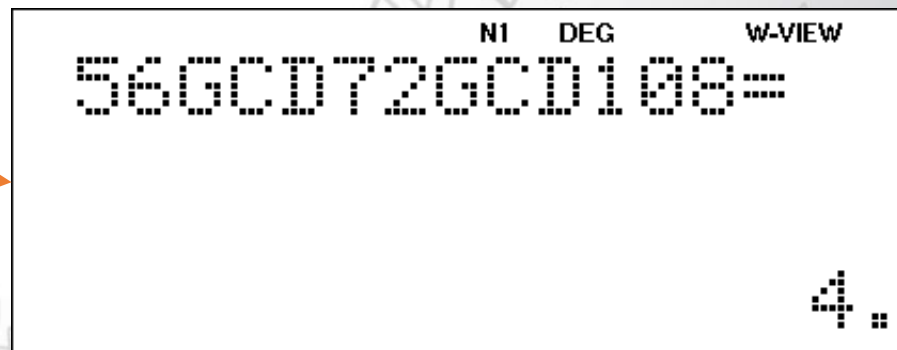
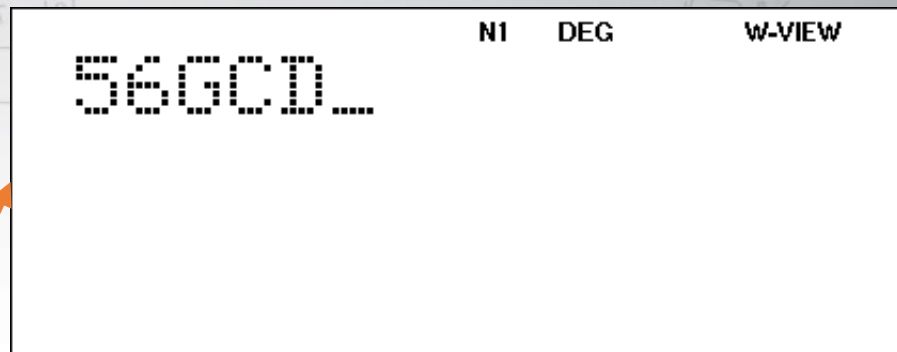


Highest Common Factor (GCD)

- To find the highest common factor we use 2ndF $\text{GCD ENG} \rightarrow$ 2

- E.g. Find the HCF of 56, 72 and 108.

- Press 5 6 2ndF $\text{GCD ENG} \rightarrow$ 2
 7 2 2ndF $\text{GCD ENG} \rightarrow$ 2
 1 0 8 =



Lowest Common Multiple

- To find the lowest common multiple we use 2ndF $\overset{\text{LCM}}{\boxed{3}}$

- E.g. Find the LCM of 14, 18 and 32.

- Press $\boxed{1}$ $\boxed{4}$ 2ndF $\overset{\text{LCM}}{\boxed{3}}$

$\boxed{1}$ $\boxed{8}$ 2ndF $\overset{\text{LCM}}{\boxed{3}}$

$\boxed{3}$ $\boxed{2}$ $\boxed{=}$

N1 DEG W-VIEW
14LCM...

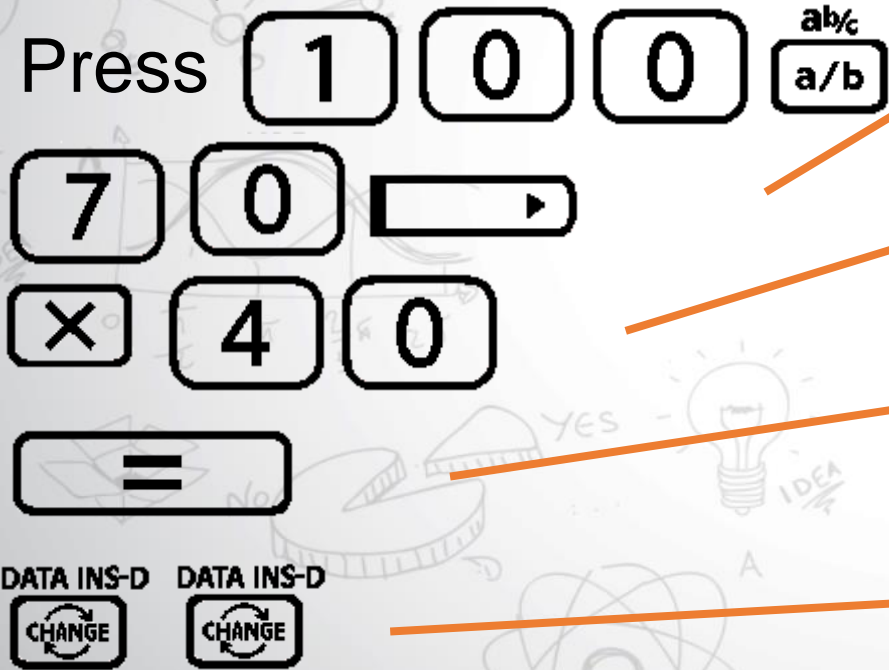
N1 DEG W-VIEW
14LCM18LCM...

N1 DEG W-VIEW
14LCM18LCM32=
2016.



Teacher Shortcut – Class marks

- E.g. First 3 students get 40, 55 and 23 out of 70 for test.
- To calculate their percentages quickly:
- Press



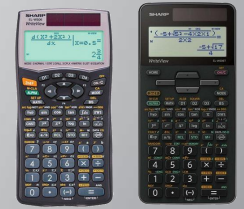
$$\frac{100}{4}$$

$$\frac{100}{70}$$

$$\frac{100}{70} \times 40$$

$$\frac{100}{70} \times 40 = 57\frac{1}{7}$$

$$\frac{100}{70} \times 40 = 57.14285714$$



- For the next mark just type in the mark

5 5

- And press

=

55_ NI DEG W-VIEW

Kx55= NI DEG W-VIEW
78 $\frac{4}{7}$

↑ Kx55= NI DEG W-VIEW
78.57142857
↓

- And again, mark

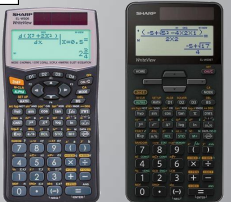
2 3

=


23_ NI DEG W-VIEW

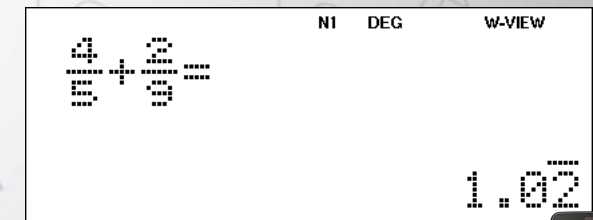
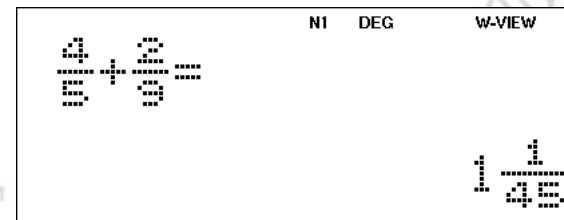
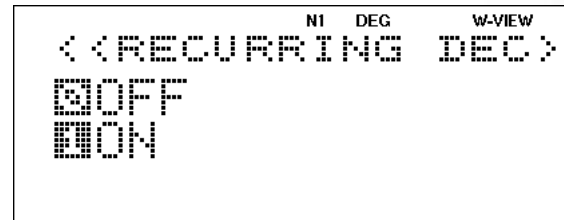
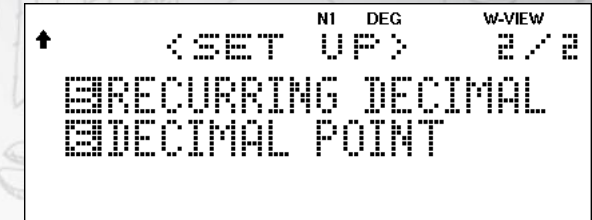
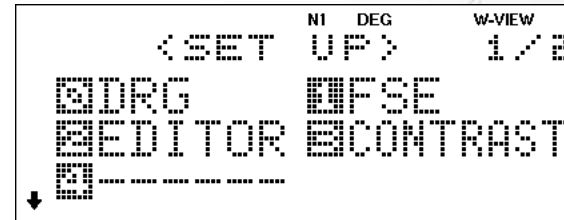
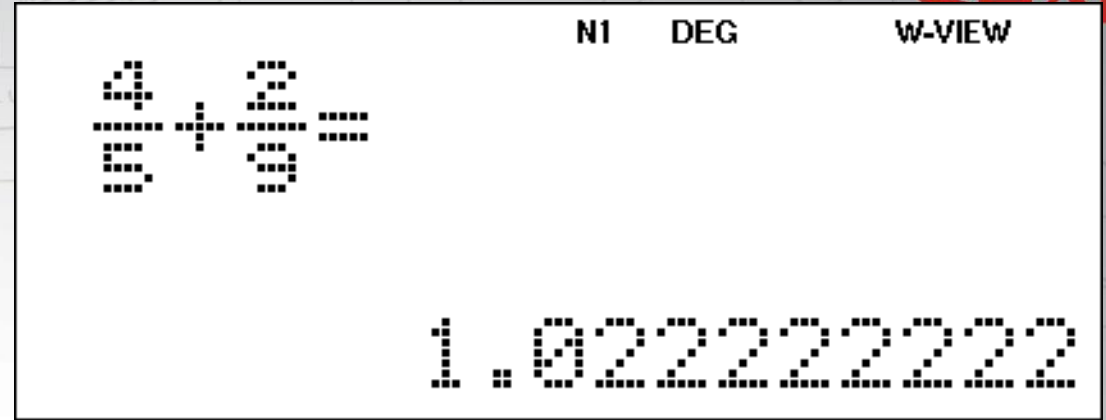
Kx23= NI DEG W-VIEW
32 $\frac{6}{7}$

↑ Kx23= NI DEG W-VIEW
32.85714286



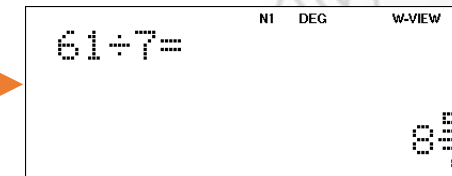
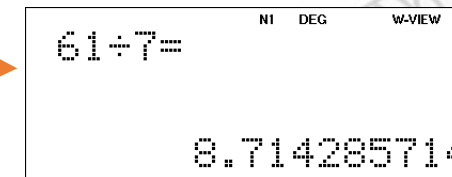
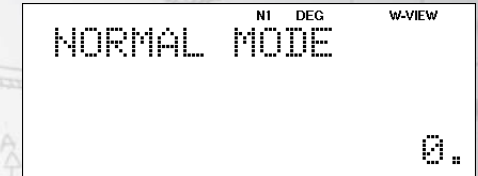
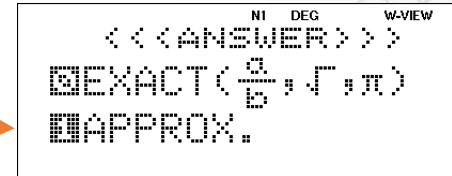
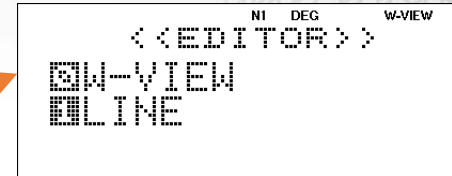
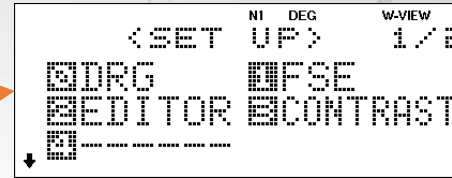
Recurring decimals

- The calculator can also show recurring decimals.
- Press **SET UP** 
- Choose **5**
- And press **1** to turn it on
- Press **CHANGE** to see the recurring decimal format of the number

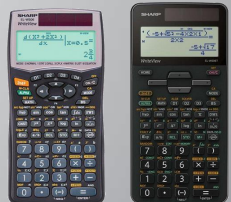


Changing the way answers are displayed.

- Press **SETUP**
- And choose **2** for EDITOR
- Choose **0** for W-VIEW
- **1** for APPROX
- Test **6** **1** **+BIN** **÷**
7 **=**
- Press **CHANGE** to see the fraction forms.



To change back to the original setting: **SETUP** **2** **0** **0**



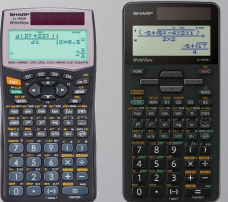
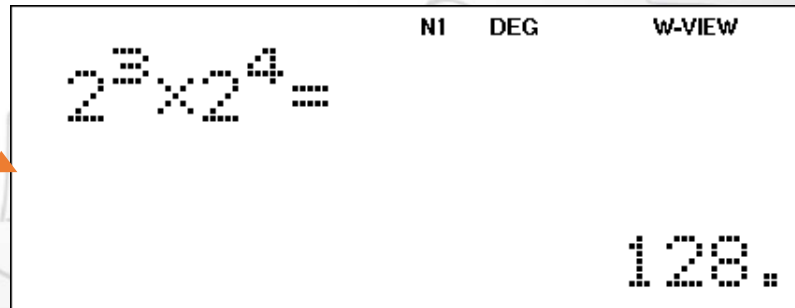
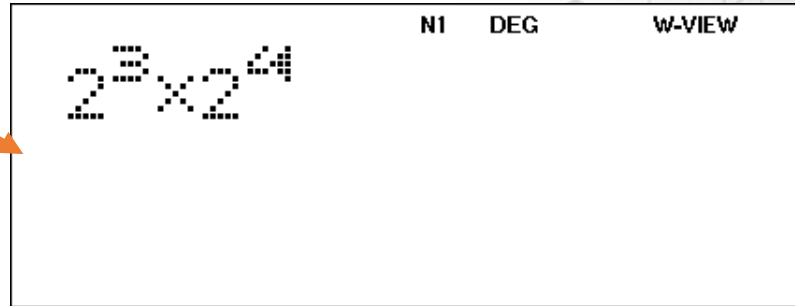
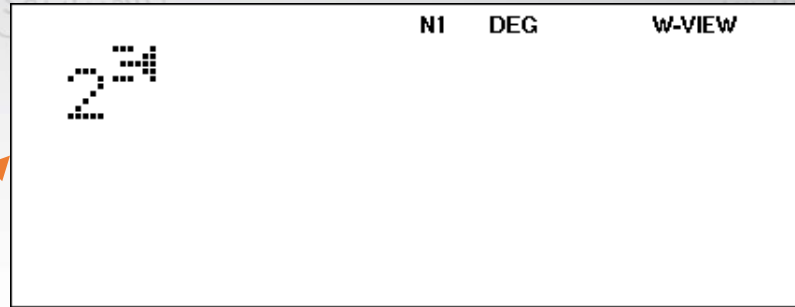
Exponents

- Teaching the multiplication rule:

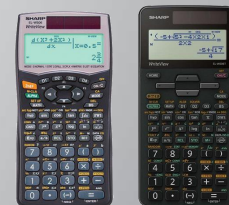
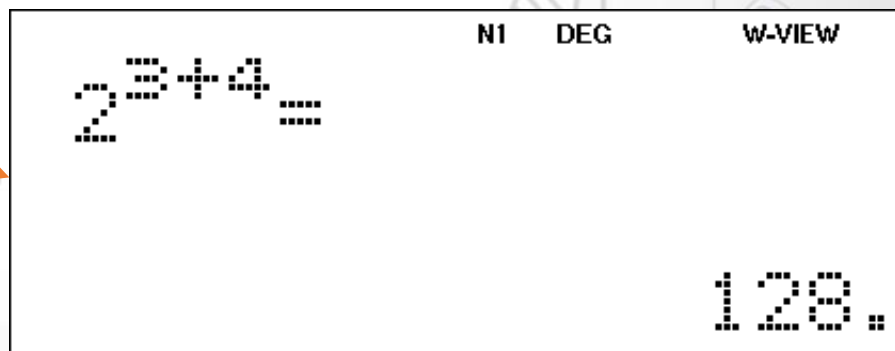
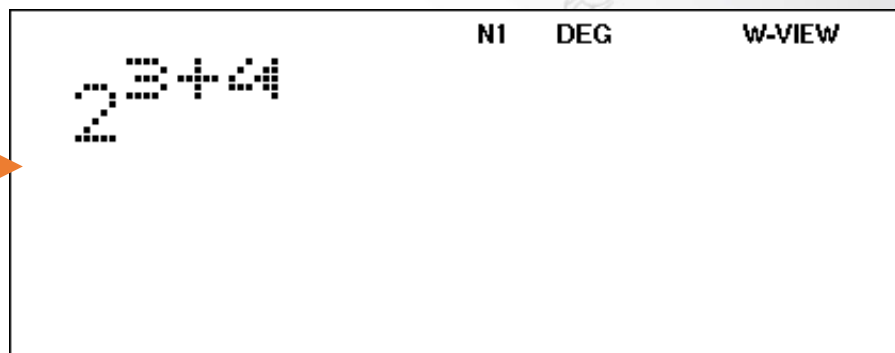
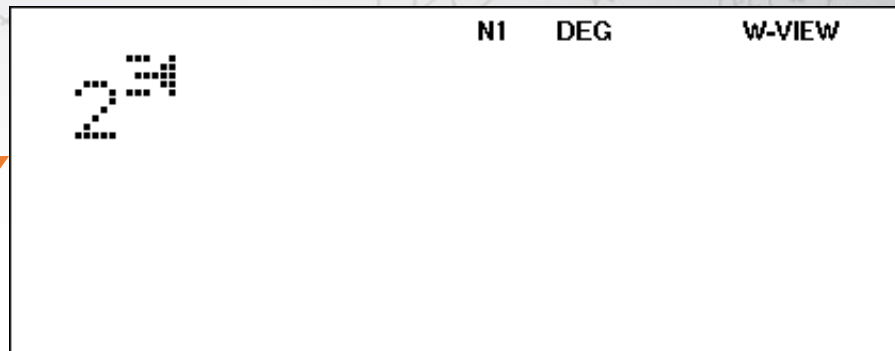
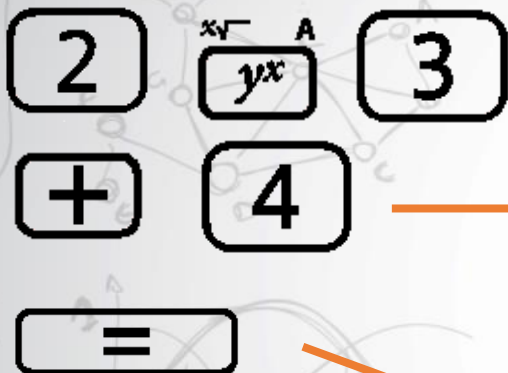
• Press **2** **y^x** **3**



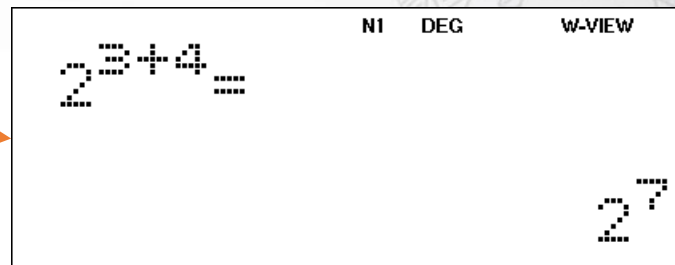
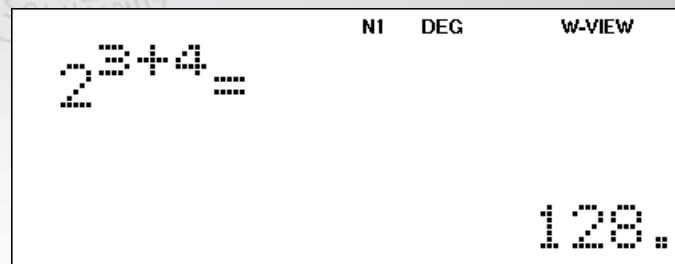
\times **2** **y^x** **4**



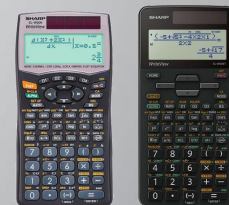
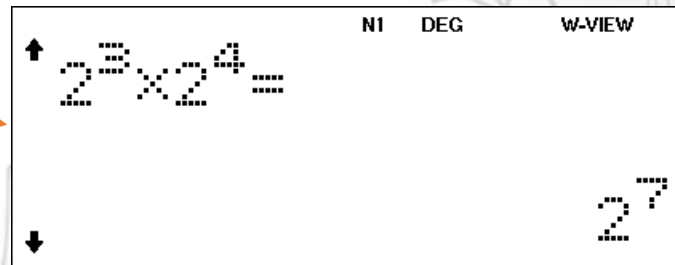
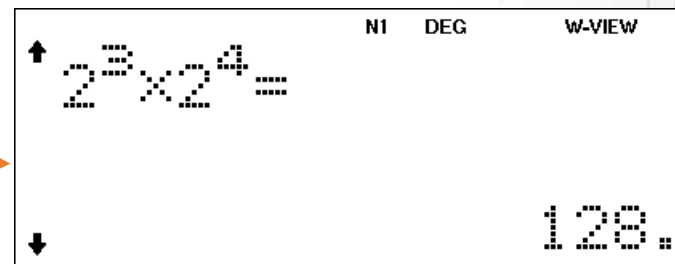
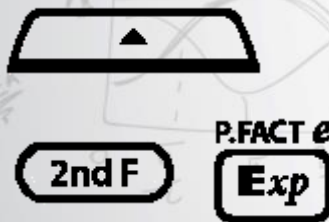
- Two ways to prove it:
- Press



- Now we can use:



- Now scroll up to previous example:



Surds

- We can also use this idea to teach surds:

$\sqrt{\quad}$ $\sqrt{\quad}$ $\sqrt{\quad}$ $\sqrt{\quad}$

\times $\sqrt{\quad}$ $\sqrt{\quad}$

$=$

$\sqrt{2}$

$\sqrt{2} \times \sqrt{4}$

$\sqrt{2} \times \sqrt{3} =$
 $\sqrt{6}$

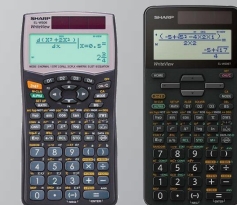
- And:

$\sqrt{\quad}$ $\sqrt{\quad}$ $\sqrt{\quad}$ $\sqrt{\quad}$

$=$

$\sqrt{2} \times \sqrt{3}$

$\sqrt{2} \times \sqrt{3} =$
 $\sqrt{6}$



Logs

- Base 10 button: \log
- Different base: e.g. $\log_2 8$

• Press: 2ndF $\log_a x \text{XNOR}$ π

2 \rightarrow

8

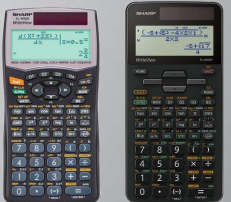
$=$

N1 DEG W-VIEW
 $\log_4 (4)$

N1 DEG W-VIEW
 $\log_2 (4)$

N1 DEG W-VIEW
 $\log_2 (8)$

N1 DEG W-VIEW
 $\log_2 (8) =$
 $3.$



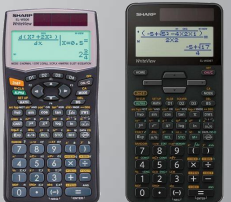
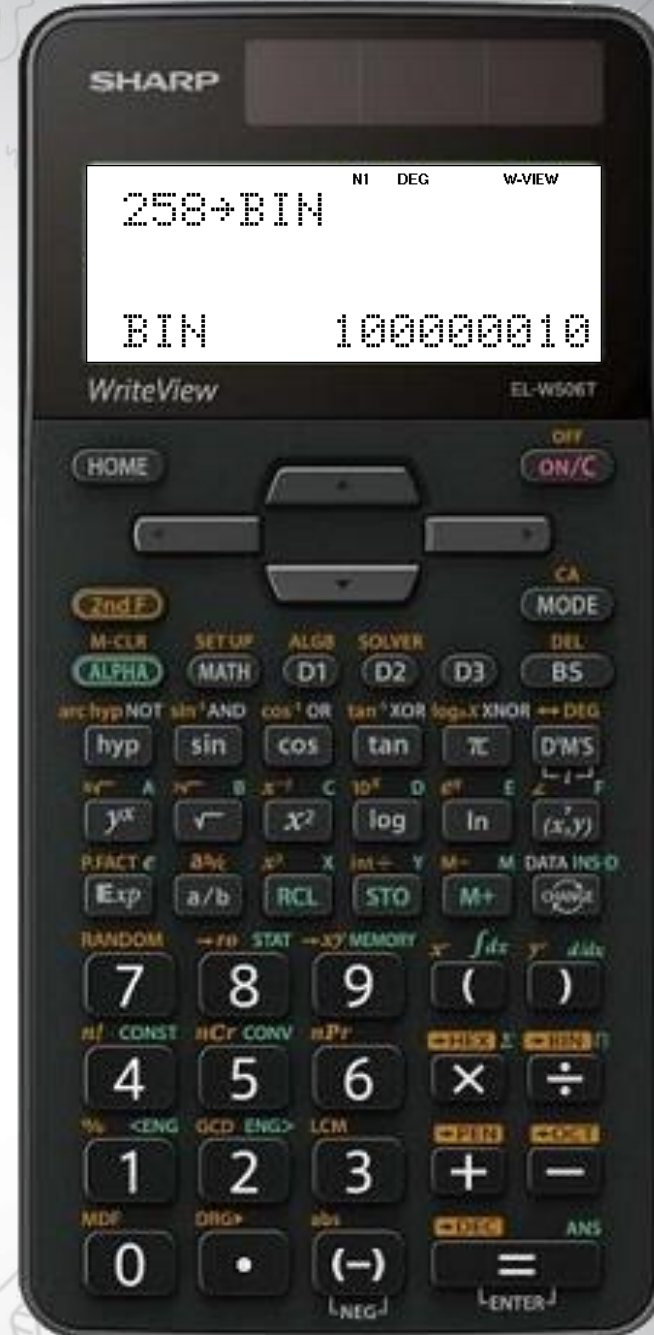
Binary Conversions

- Changing from Decimal to Binary:

- E.g. 258 to binary is:
- Type in 258 **→BIN**
- Press **2ndF** **÷**


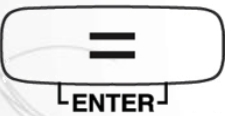
- Changing Binary back to decimal:

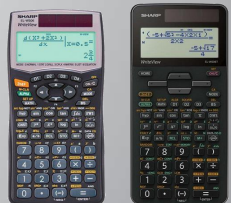
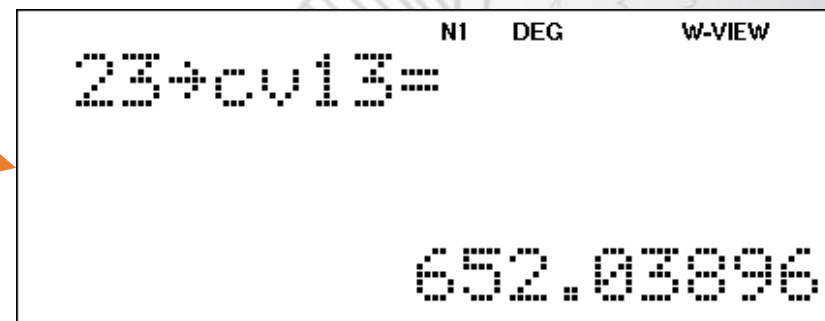
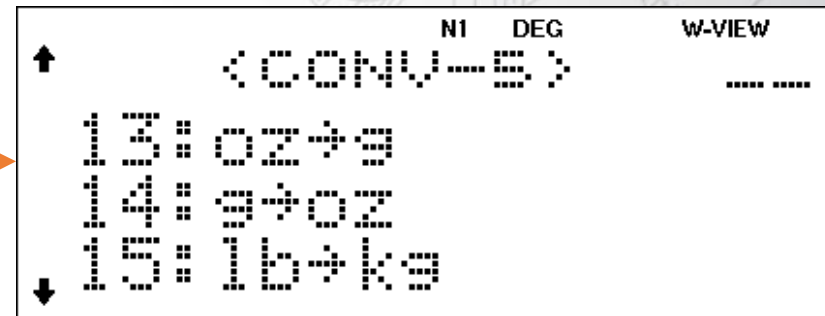
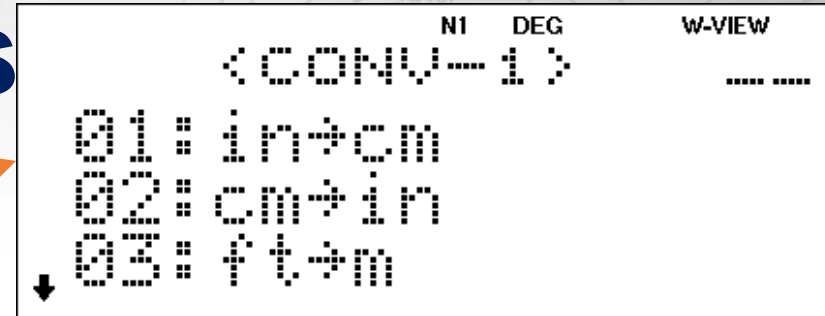
- Type in 10110 **→DEC**
- Press **2ndF** **+**



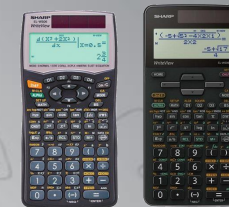
Conversions

E.g. Ounces to grams

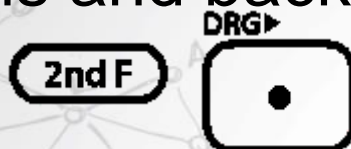
- 23 ounces:
- Press 23
- **2ndF** CNST
- Press  until you find
OZ → g
- Press 1 3 
- There are 44 different conversions.



Degrees, Radians and Gradians



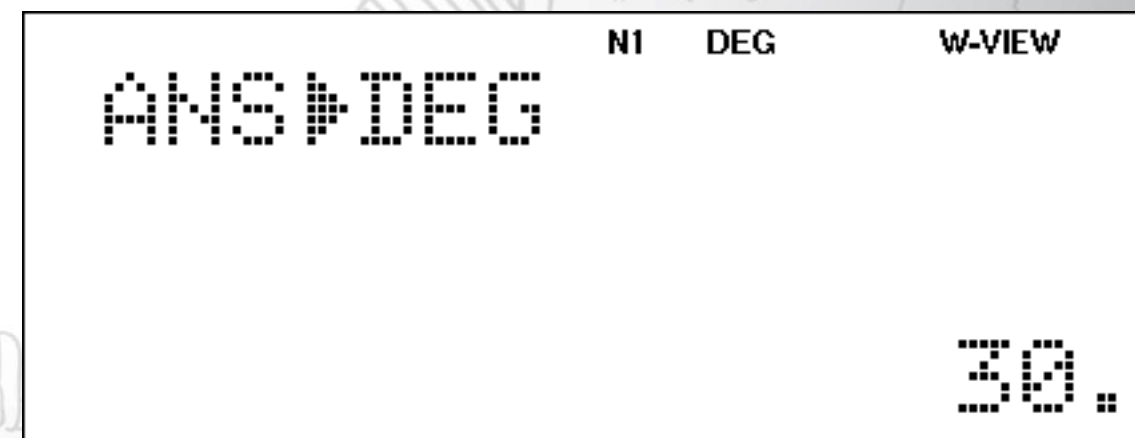
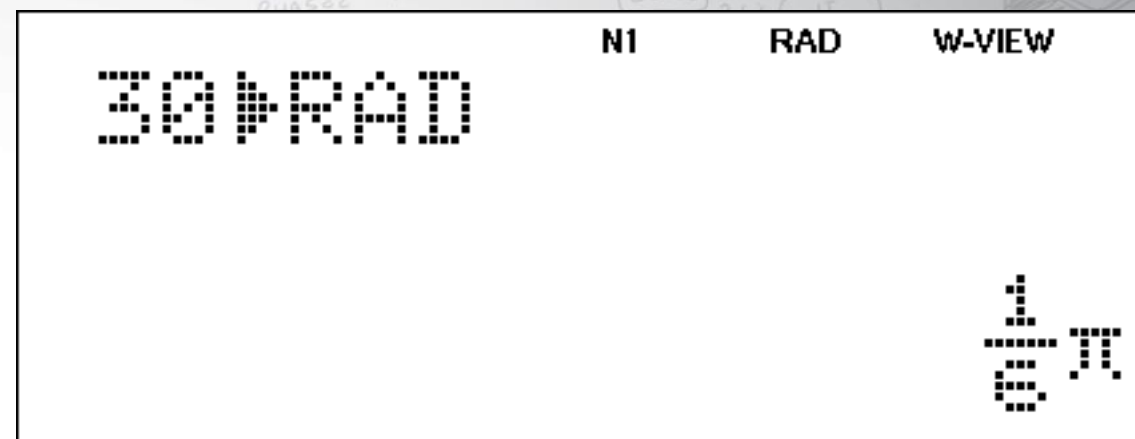
- We can change our angle units from degrees to radians to gradians and back again by using



- E.g. convert 30° into radians.

- Press **3** **0** **2nd F** **DRG**

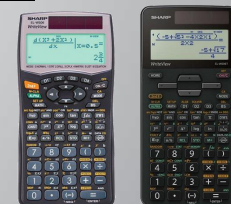
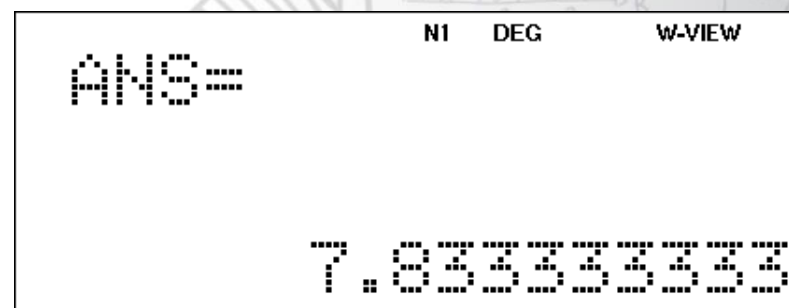
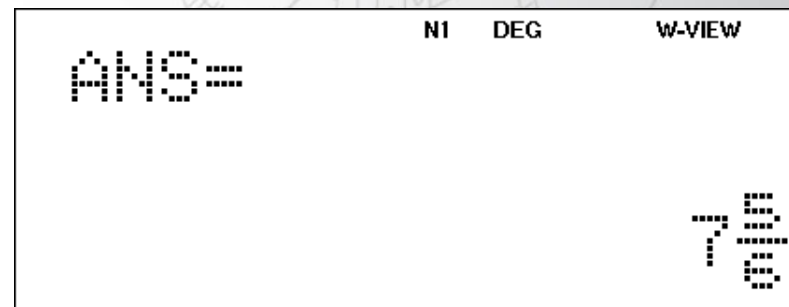
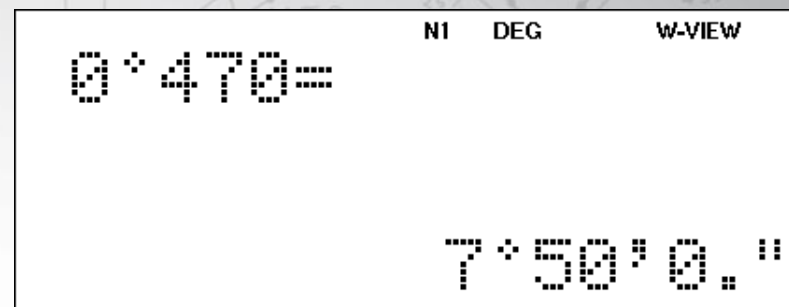
- To convert back to degrees again press **2nd F** **DRG** **2nd F** **DRG**
- Note: You can also use the Setup menu to change back to degrees or save it into a D-key.



DMS / Time Functions

- Changing minutes to hours
- E.g. How many hours are 470 minutes?

- Press **OFF ON/C** to clear any chain calculations
- Press **0** **↔DEG D°M'S** **4** **7** **0** **=**
- Press **2ndF** **↔DEG D°M'S** to change it into fraction or decimal format (remember to use your **DATA INS-D CHANGE** button).



DMS/ Time Functions

- Finding time in a speed-distance-time calculation.
- E.g. How long does it take to travel 450km at an average speed of 117km/h?

• Press **4** **5** **0** **÷**

1 **1** **7** **=**

• Press **DATA INS-D CHANGE** **DATA INS-D CHANGE**

• Press **2nd F** **D°M'S**

- The answer is 3 hours, 50 minutes and 46.154 seconds.

NI DEG W-VIEW

$$450 \div 117 =$$

$$3 \frac{1}{3}$$

NI DEG W-VIEW

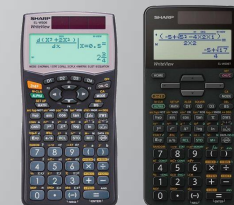
$$450 \div 117 =$$

$$3.846153846$$

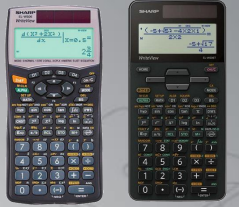
NI DEG W-VIEW

$$\text{ANS} =$$

$$3^{\circ} 50' 46.154''$$



DMS / Time Functions



- Adding / Subtracting Time
- E.g. find the length of time spent on a bus if the bus left at 9.45 and arrived at 12.32.

• Press **1** **2** **↔DEG** **D°M'S** **3** **2**
− **9** **↔DEG** **D°M'S** **4** **5** **=**

• The answer is 2 hours and 47 minutes

• To change back to a fraction notation press **2nd F** **↔DEG** **D°M'S**

NI DEG W-VIEW

$$12^{\circ}32' - 9^{\circ}45' =$$

$$2^{\circ}47'0.00''$$

NI DEG W-VIEW

ANS=

$$2\frac{47}{60}$$

Factor Pairs

- Press **CA MODE** **2**
- Lets find the factors of 36
- Press **3** **6** **abc** **a/b**



NI DEG W-VIEW

$$\frac{36}{4}$$

NI DEG W-VIEW

$$\frac{36}{4}$$

NI DEG W-VIEW

Function2?

NI DEG

X_Start: 0.

X_Step: 1.

NI DEG

X_Start: 0.

X_Step: 1.

NI DEG

X	ANS
1	36
2	18

0.



Factorising Trinomials

- Rules to remember:
 - $ax^2 + bx + c$
 - Look at the sign in front of the c:
 - If it is plus the signs in both brackets are the same, and you add your two factors to find the value of b.
 - The sign in front of b tells you which sign to put into your two brackets.
 - If the sign is negative, subtract one factor from the other, and the signs in the brackets are different.

- E.g. $x^2 + 5x + 6$

- $x^2 - 5x + 6$

- $x^2 - x - 6$

Quadratic Formula

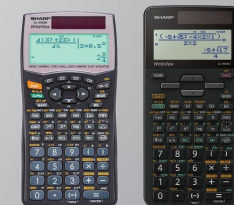
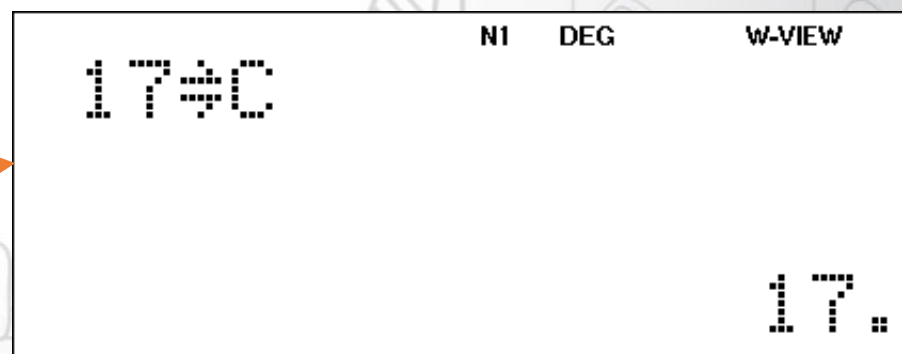
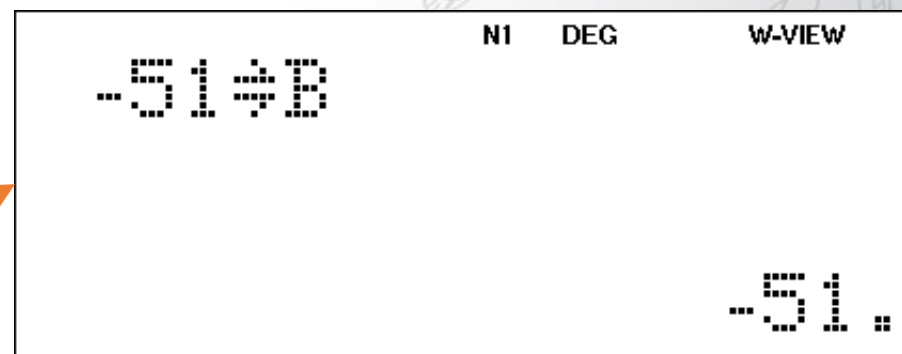
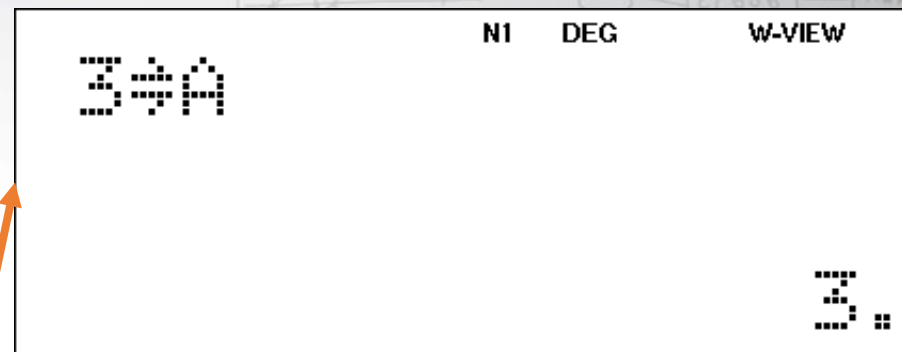
HOME

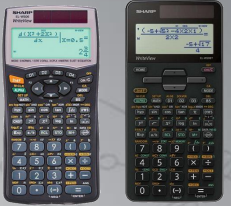
- $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
- If we have: $3x^2 - 51x + 17$
- So we have: $a = 3$, $b = -51$ and $c = 17$.
- Save each one into the memory keys:

• 3 $\xrightarrow{\text{int} \div Y}$ **STO** $\xrightarrow{x^Y A}$ **y^x**

• **(-)** 51 $\xrightarrow{\text{int} \div Y}$ **STO** $\xrightarrow{3^Y B}$ **y^x**

• 17 $\xrightarrow{\text{int} \div Y}$ **STO** $\xrightarrow{x^{-1} C}$ **x²**





- Now we type in the formula.
- Use **M-CLR ALPHA** to get the memory key letters.

- Press **a/b** **(-)**

M-CLR ALPHA **√** **(-)**
√ **B** **(-)** **+**
√ **B** **M-CLR ALPHA** **√** **x⁻¹ C** **x²**
- **4** **M-CLR ALPHA** **x[√] A** **yx**
M-CLR ALPHA **x⁻¹ C** **x²**
▼ **2** **M-CLR ALPHA** **x[√] A** **yx**
=

NI DEG W-VIEW
0/0

NI DEG W-VIEW
-B
0

NI DEG W-VIEW
-B+4
0

NI DEG W-VIEW
-B+√B²
0

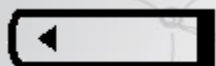
NI DEG W-VIEW
-B+√B²-4A
0

NI DEG W-VIEW
-B+√B²-4A
0

NI DEG W-VIEW
-B+√B²-4AC
2A

NI DEG W-VIEW
-B+√B²-4AC
2A
16.65986111

- To get the second x:
- Press



N1 DEG W-VIEW

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

N1 DEG W-VIEW

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

N1 DEG W-VIEW

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

N1 DEG W-VIEW

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

N1 DEG W-VIEW

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

N1 DEG W-VIEW

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

0.34013889

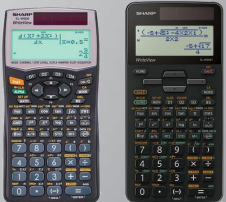
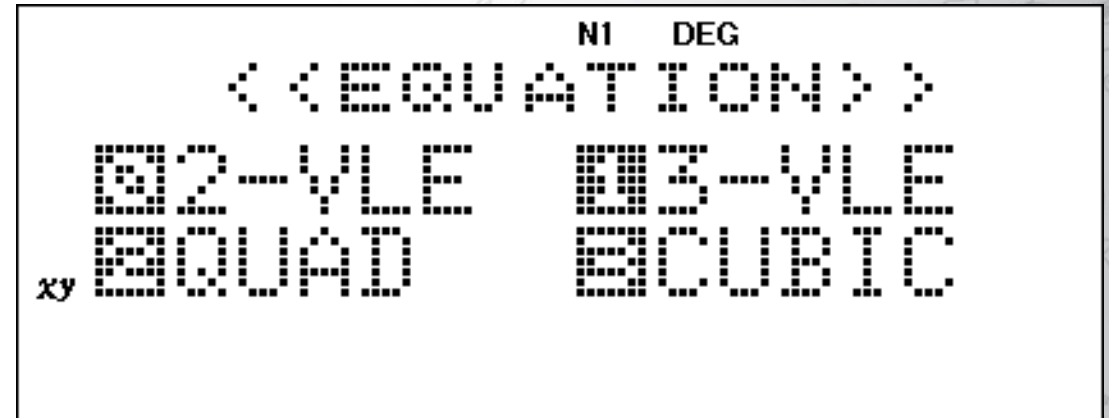


Equation Mode

- You can solve 4 different types of equations in equation mode.

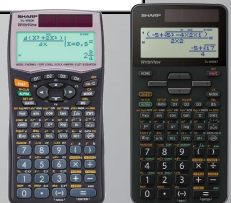
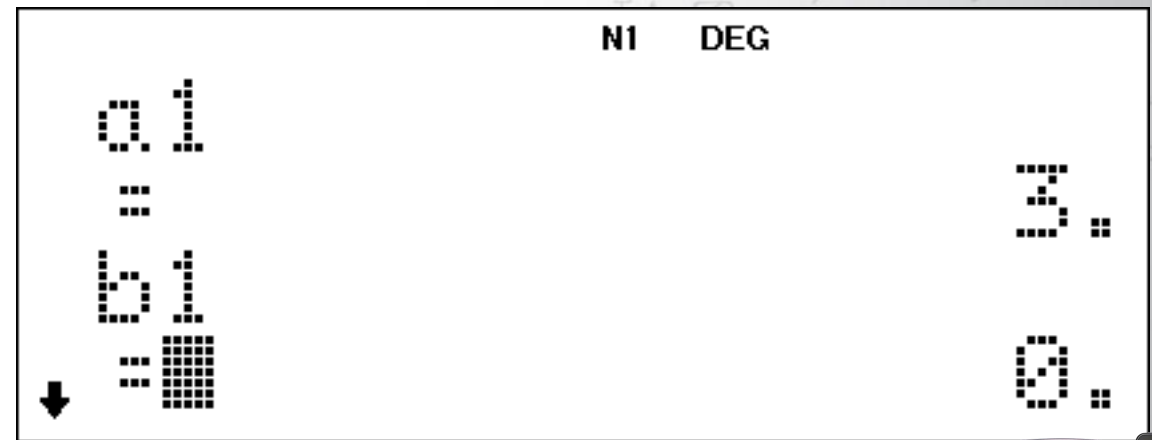
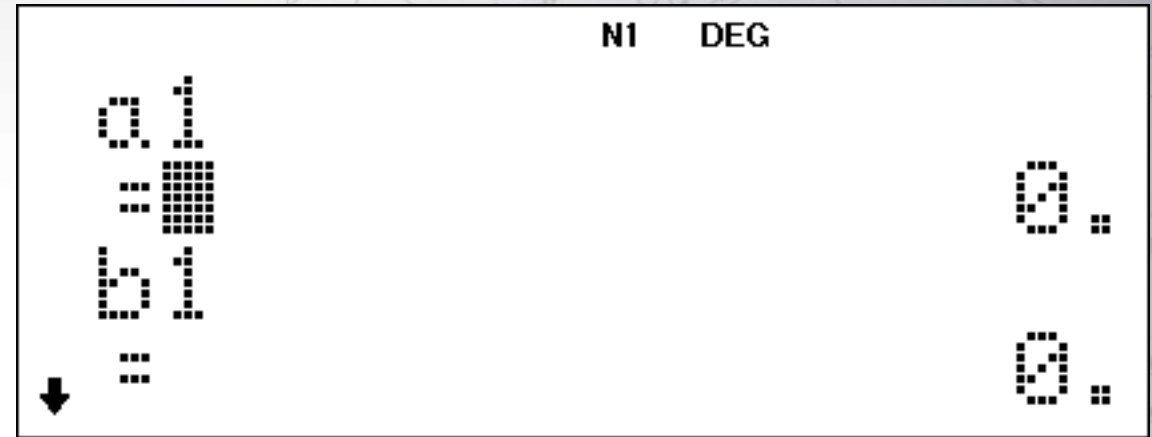
Press **CA MODE** **4**

- 0: 2-VLE
 - 2 variable linear equation
- 1: 3-VLE
 - 3 variable linear equation
- 2: QUAD
 - Quadratic equation
- 3: CUBIC
 - Cubic equation



2 Variable Linear Equation

- Press **MODE** **4** **0**
- This mode allows you to solve for 2 variables in 2 linear equations:
 - $a_1x + b_1y = c_1$ and
 - $a_2x + b_2y = c_2$
- E.g. Find x and y if
 - $3x + 7y = 9$ and
 - $-4x + 12y = 5$
- Press **3** **=**



- Then **7** **=**
- 9** **=**
- abs**
(-) **4** **=**
- 1** **2** **=**
- 5** **=**

- The determinant is also given

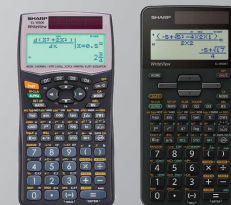
↑ NI DEG
c1 = 0.
↓

↑ NI DEG
a2 = 0.
b2 = 0.
↓ =

↑ NI DEG
a2 = -4.
b2 = 0.
↓ =

↑ NI DEG
c2 = 0.
↓

NI DEG
X: 1.140625
Y: 0.796875
D: 64.



Cubic Equation

- We are able to solve cubic equations in the form

$$ax^3 + bx^2 + cx + d$$

- Press **MODE** **4** **3**

- E.g. Solve for x:

- $7x^3 - 3x^2 + 8x - 12 = 0$

- Press **7** **=**

abs

(-) **3** **=**

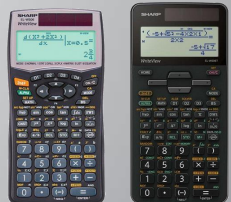
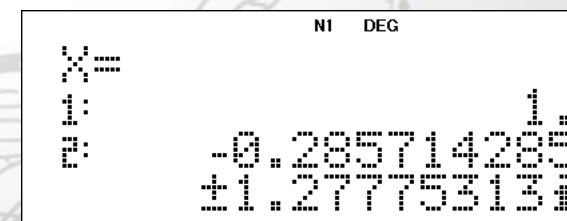
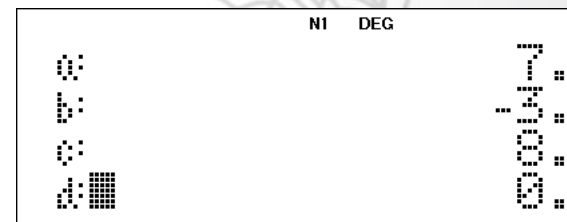
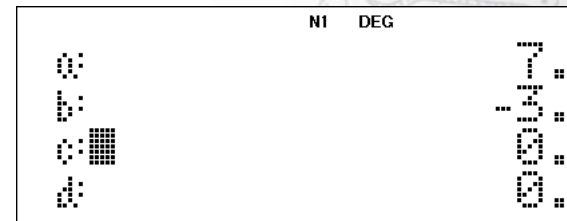
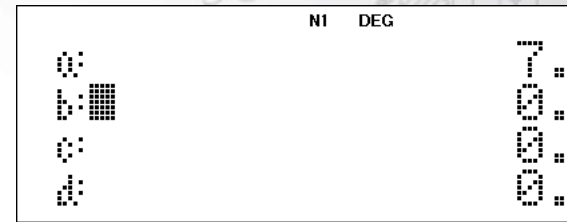
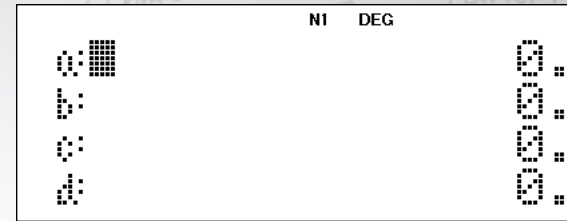
└─NEG─┘

8 **=**

abs

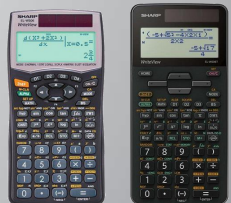
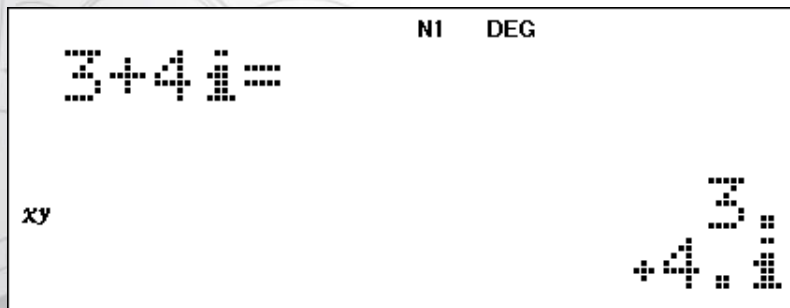
(-) **1** **2** **=**

└─NEG─┘



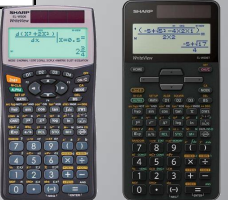
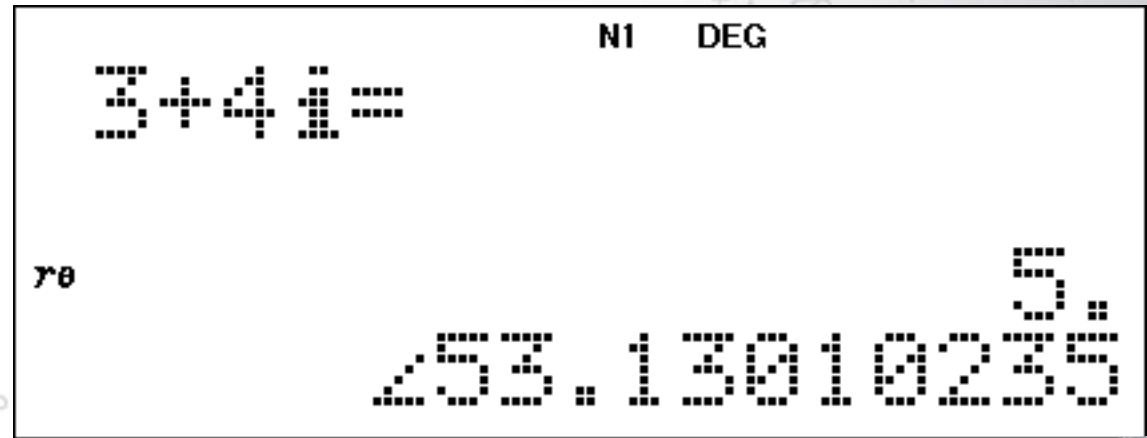
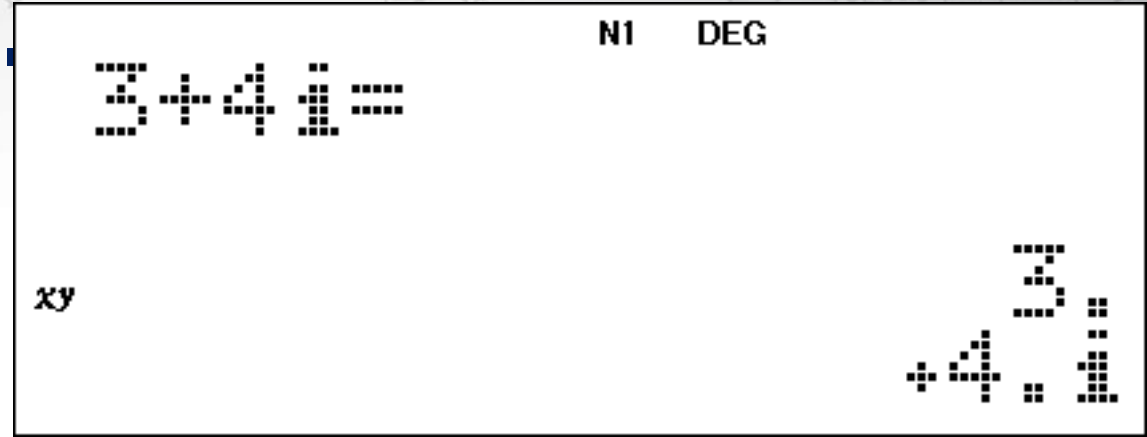
Complex Numbers

- Press **MODE** **3**
- To make an i press **D°M'S**
- E.g. Type in $3 + 4i$
 - Press **3** **+** **4** **D°M'S** **=**



Changing between rectangular and polar coordinates.

- Press $\boxed{3} \boxed{+} \boxed{4} \boxed{\leftrightarrow \text{DEG}}$
 $\boxed{=}$
- Press $\boxed{\text{2ndF}} \boxed{8}$
 - This gives the hypotenuse (5) and the angle the hypotenuse makes with the x-axis.

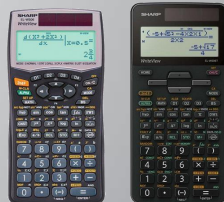
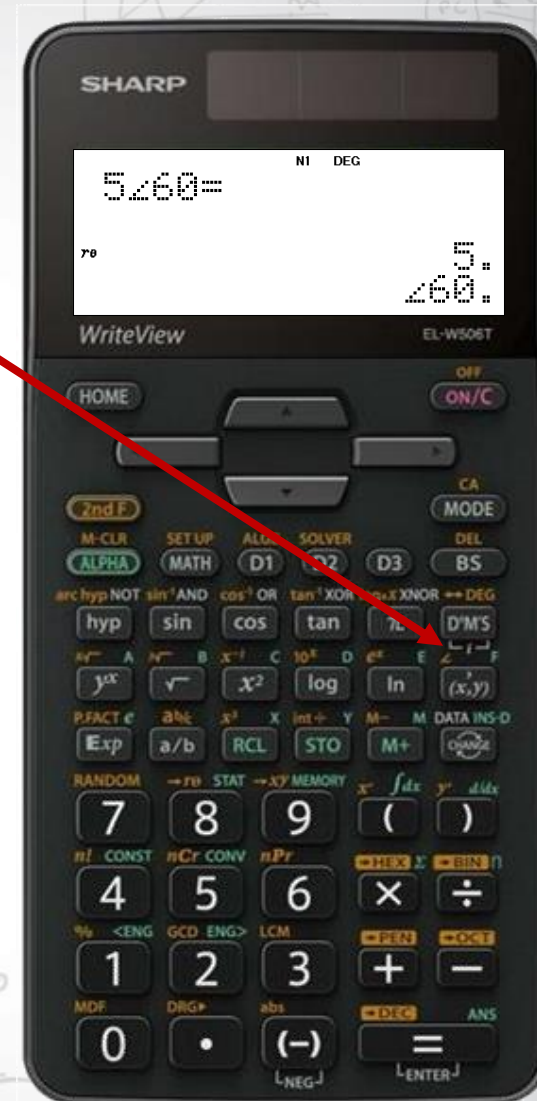


Changing from polar to rectangular coordinates.

- To type in the hypotenuse and the angle, we use 2ndF $(x,y)^{\angle F}$
- E.g. Press 5 2ndF $(x,y)^{\angle F}$ 6 0
 $=$
- To convert back to rectangular coordinates press

2ndF $\xrightarrow{\text{xy MEMORY}}$ 9

5∠60= NI DEG
xy 2.5
+4.330127019i



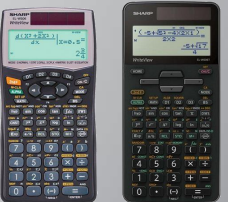
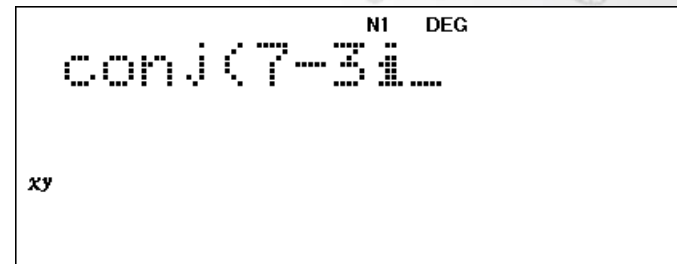
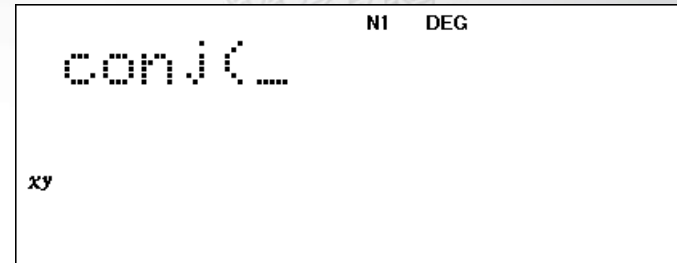
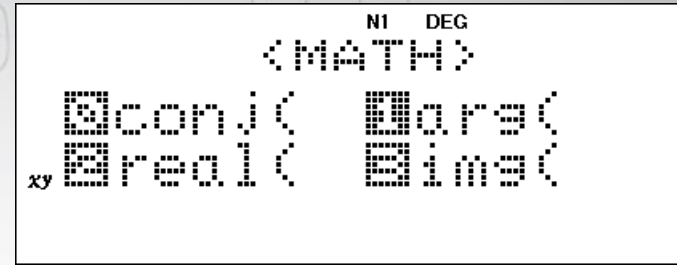
Conjugate Form

- To find the conjugate form we use the **MATH** menu.
- E.g. Find the conjugate of $7 - 3i$

• Press **MATH** **0**

7 **-** **3** **↔DEG**
D°M'S

=



Real and Imaginary values

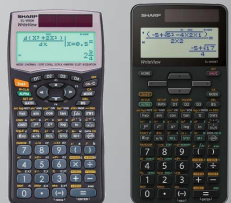
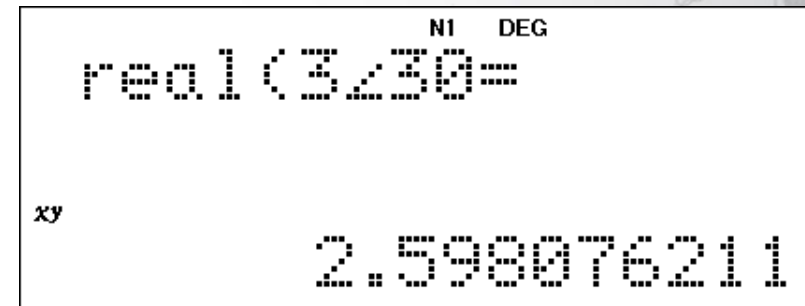
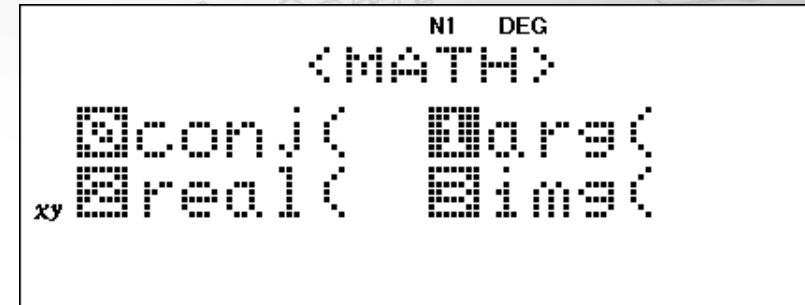
- We can also type in the hypotenuse and angle and find the real and imaginary values for them.
- E.g. Find the real and imaginary values for $r = 3$ and $\theta = 30$.

• Press **MATH** **2** **3** **2ndF** **(x,y)** **3**

0 **=**


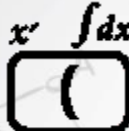
• And press **MATH** **3** **3** **2ndF** **(x,y)**










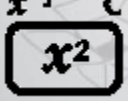



3 **0** **=**



Calculus - Integration

- Finds the definite integral

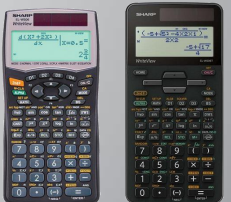
- Use   $\int_a^b f(x)$
- E.g. Find $\int_{-3}^4 x^2 + 7$

- Press             



NI DEG W-VIEW

$$\int_{-3}^4 x^2 + 7 dx = 79 \frac{1}{3}$$



Differentiation

- Finds the derivative at a point

- Use **M-CLR ALPHA** $y' \frac{d}{dx}$ **)**

- E.g. Find $\frac{d}{dx} (x^4 - 4)$ when $x = 2$

- Press **M-CLR ALPHA** $y' \frac{d}{dx}$ **RCL** **RCL** **x^y**

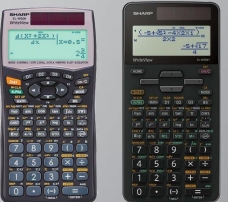
4 **→** **-** **4** **→**

2 **=**


N1 DEG W-VIEW

$$\frac{d(x^4 - 4)}{dx} \Big|_{x=2}$$

32.00000005

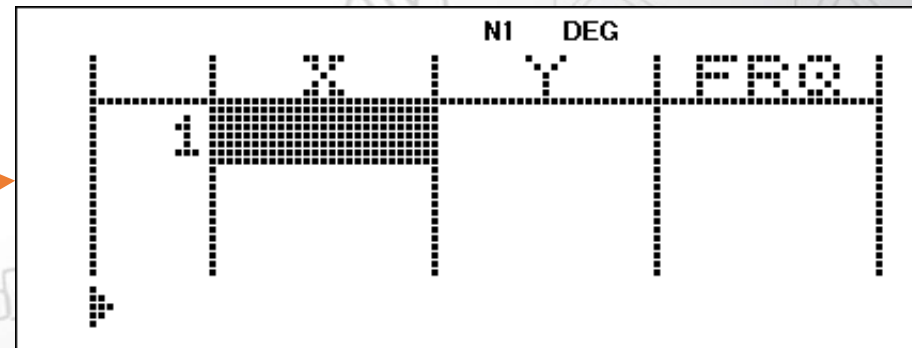
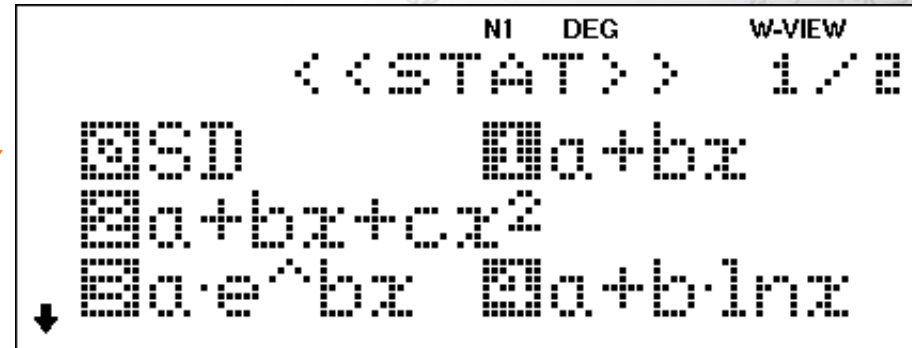
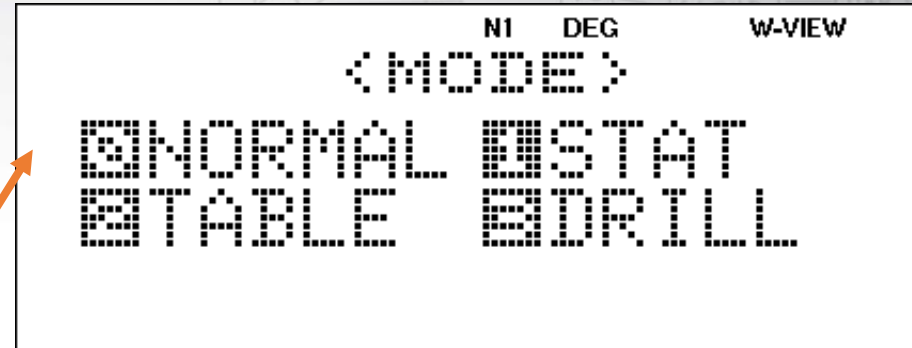


More Calculus

- Gradient at a point –
- We can use our linear regression function to find the average gradient between two points.
- E.g. (3; 4) and (5; 10)
- Press 

1

1



- Type in each coordinate:

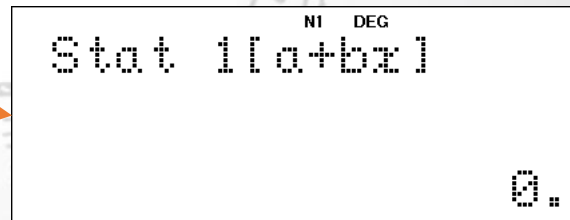
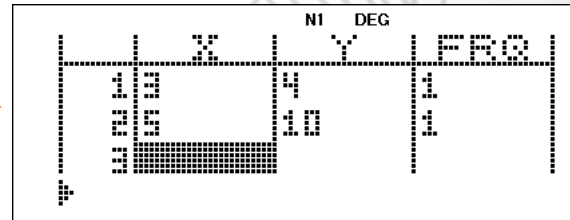
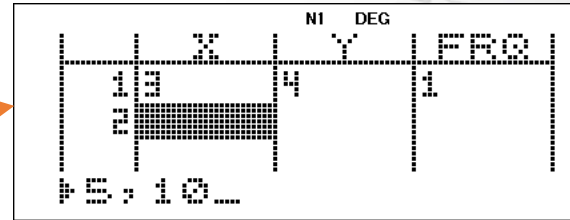
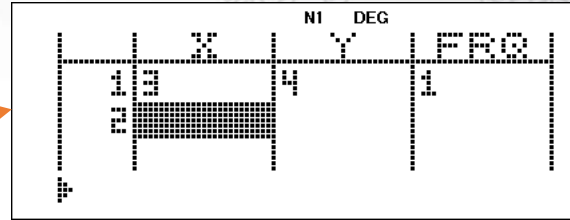
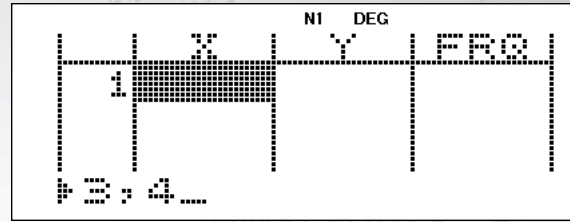
3 (x, y) 4

=

5 (x, y) 1 0

=

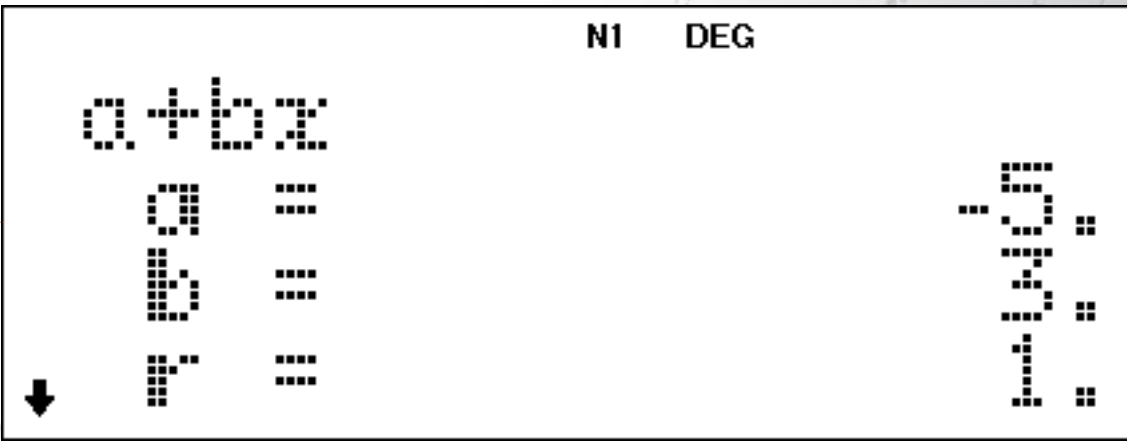
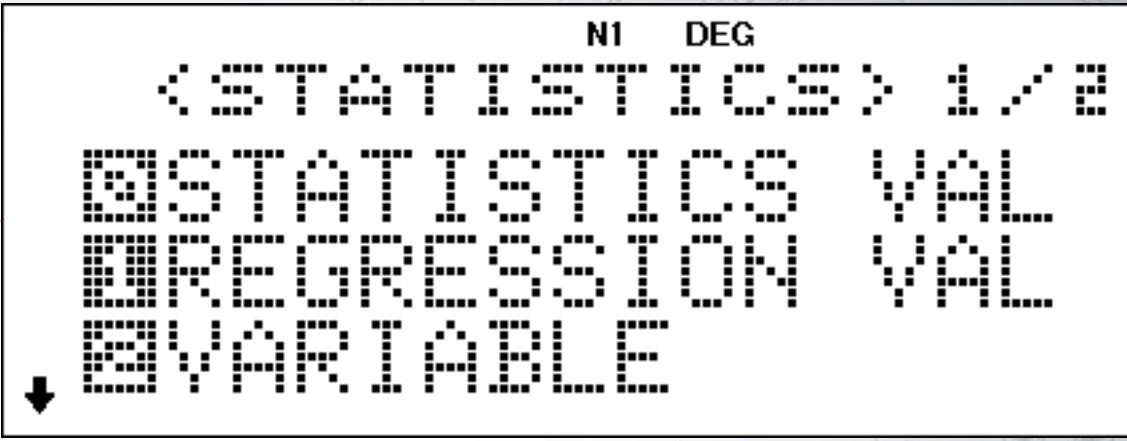
- Press  when you are done.



- Now we find the gradient:

- Press **M-CLR** **ALPHA** **8**

1

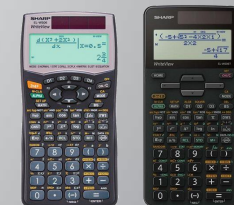
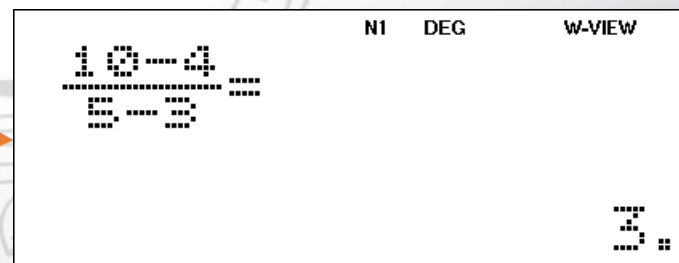
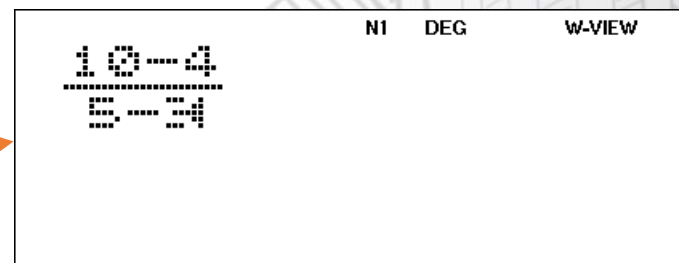
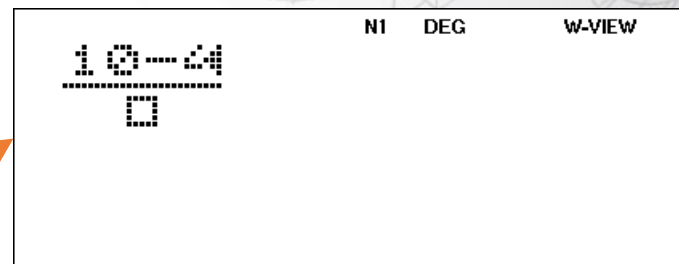
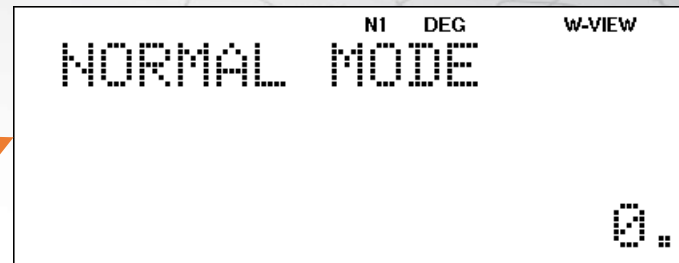
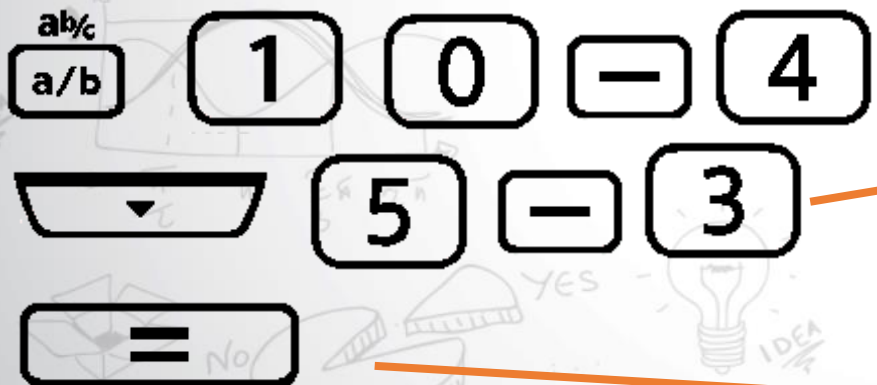


• Traditional route:

• $m = \frac{y_2 - y_1}{x_2 - x_1}$

• $m = \frac{10 - 4}{5 - 3}$

• Press **HOME**



Calculus graphs and roots

- $y = x^3 + 13x^2 + 34x - 48$
- Press **MODE** **2**
- Type in the expression:

Calculator keypad sequence for inputting the equation:

- RCL** **X** **RCL** **X** **y^x** **3** **+** **1** **3** **RCL** **X** **RCL** **X** **x⁻¹** **C** **+** **3** **4** **RCL** **X** **RCL** **X** **-** **4** **8** **=**

NI DEG W-VIEW
TABLE MODE
Function1?

NI DEG W-VIEW
X³_

NI DEG W-VIEW
X³+13X²_

NI DEG W-VIEW
X³+13X²+34X_

NI DEG W-VIEW
X³+13X²+34X-48_

NI DEG W-VIEW
Function2?



- Skip function 2 for now so press **=**
- Leave start and step as is so press **=** **=**
- Use your up and down arrows to scroll through the table.
- To find the roots find where ANS or y is equal to 0.

NI DEG

X_Start:	0.
X_Step:	1.

NI DEG

X_Start:	0.
X_Step:	1.

NI DEG

X	ANS
0	.48
1	0
2	.88

0.

NI DEG

X	ANS
0	.48
1	0
2	.88

1.

NI DEG

X	ANS
0	.48
1	0
2	.88
3	1.28
4	1.68
5	2.08
6	2.48

-6.

NI DEG

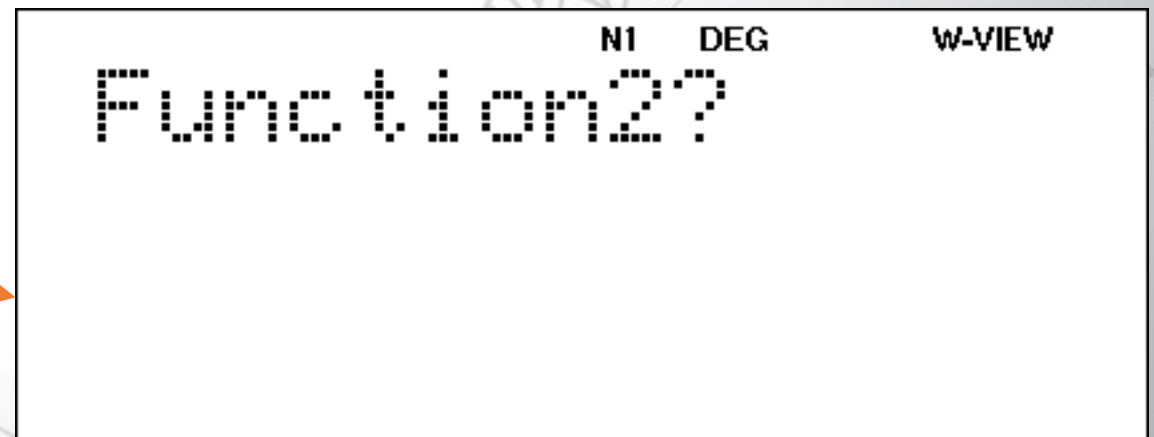
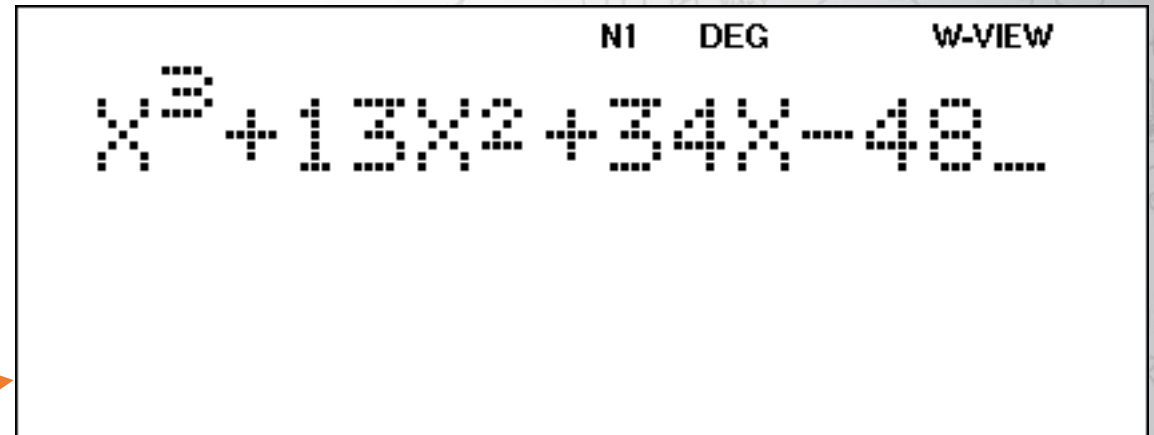
X	ANS
0	.48
1	0
2	.88
3	1.28
4	1.68
5	2.08
6	2.48
7	2.88

-9.

- Remember our equation:
- $y = x^3 + 13x^2 + 34x - 48$
- And what about the gradient?
- $y' = 3x^2 + 26x + 34$
- Lets put this into function 2:

• Press **ON/C**

=



- Type in the expression for the derivative:

3 x^3 RCL x x^3 RCL x x^{-1} C x^2
+ 2 6 x^3 RCL x x^3 RCL x
+ 3 4
=
=
=

NI DEG W-VIEW
3X²_

NI DEG W-VIEW
3X²+26X_

NI DEG W-VIEW
3X²+26X+34_

NI DEG
X_Start: 0.
X_Step: 1.

NI DEG
X_Start: 0.
X_Step: 1.

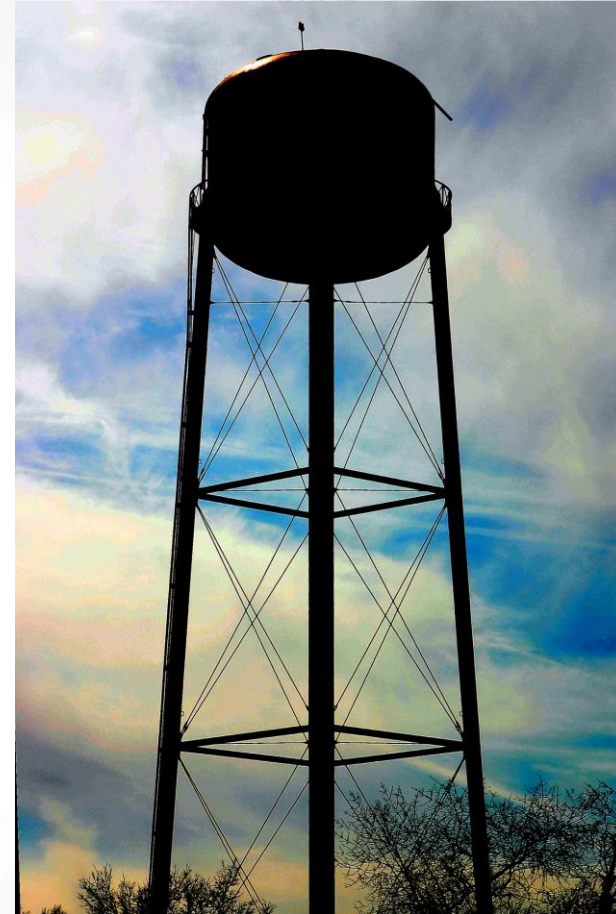
NI DEG

X	ANS1	ANS2
0	.48	34
1	0	69
2	60	98

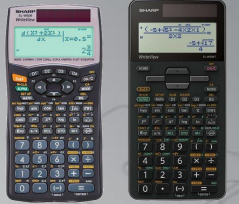
0.

E.g. From Handbook and Study Guide Kevin smith (Grade 12) p.g. 203

- The volume of water in a rainwater collection tank t minutes after it starts to empty is given by the equation $V(t) = 4(5 - t)^2$ where volume is measured in litres (l)
 - a) Determine the initial volume of water in the tank.
 - b) At what rate is the water in the tank changing after 180 seconds?
 - c) How long will it take for the tank to empty?

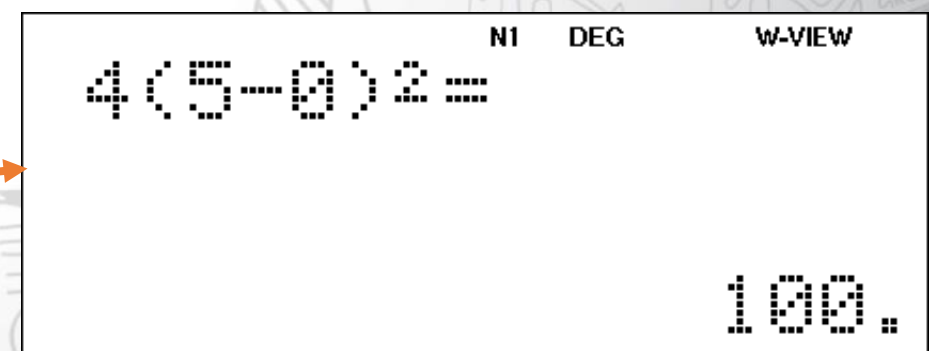
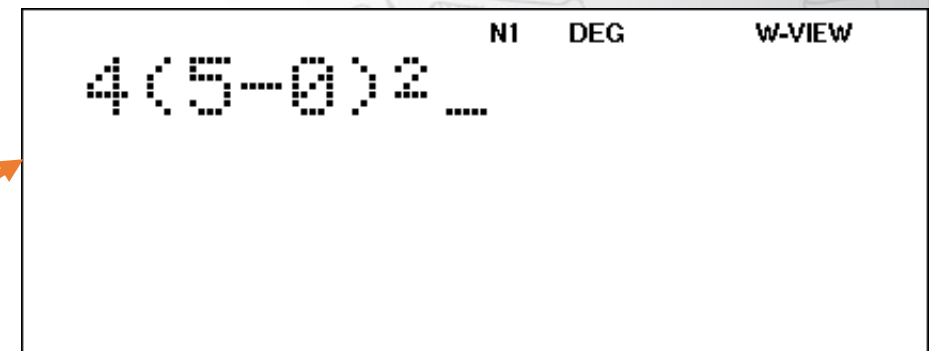
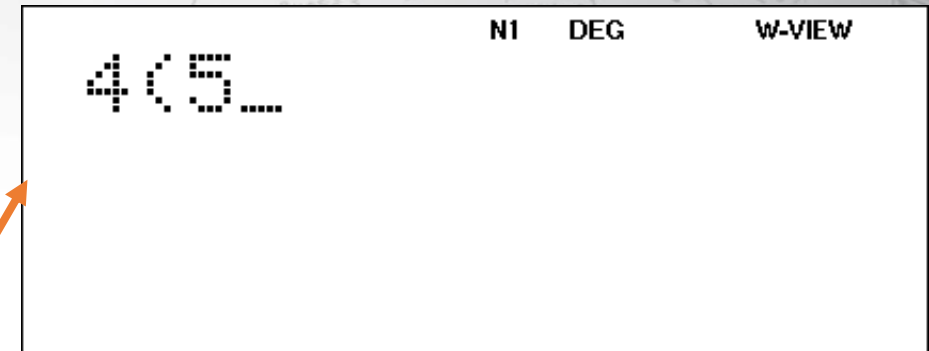
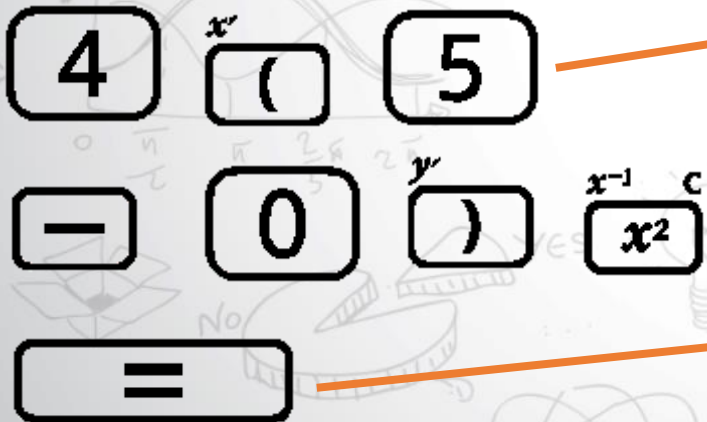


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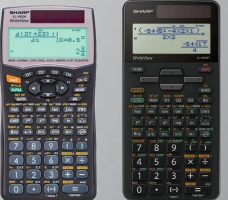
a) Determine the initial volume of water in the tank.

- $V(t) = 4(5 - t)^2$
- Initial volume means that $t = 0$
- And we substitute in:
- $V(0) = 4(5 - 0)^2$
- Type this into your calculator:



b) At what rate is the water in the tank changing after 180 seconds?

- $V(t) = 4(5 - t)^2$
- Rate means we need gradient, which means we need to differentiate:
- First simplify / multiply out:
 - $V(t) = 4(5 - t)(5 - t)$
 - $V(t) = 4(25 - 10t + t^2)$
 - $V(t) = 100 - 40t + 4t^2$
- Now we can differentiate:
- $V'(t) = -40 + 8t$



- We have that $t = 180$ seconds so we have $t = 3$ minutes and we substitute in:
- $V'(3) = -40 + 8(3)$
- Type this in:

(-) **4** **0** **+**

NEG

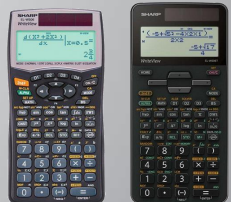
8 **(** **3** **)**

=

N1 DEG W-VIEW
-40+...

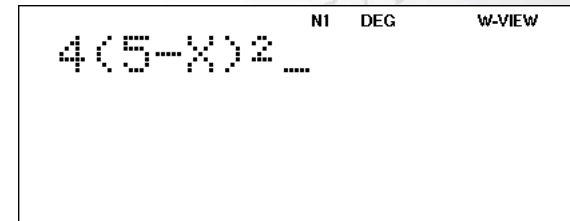
N1 DEG W-VIEW
-40+8(3)...

N1 DEG W-VIEW
-40+8(3)=
-16.

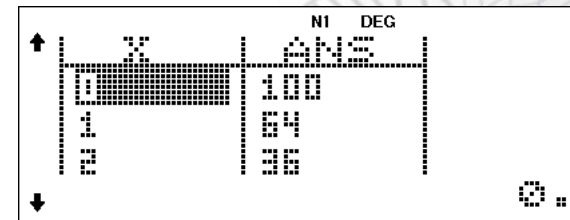


c) How long will it take for the tank to empty?

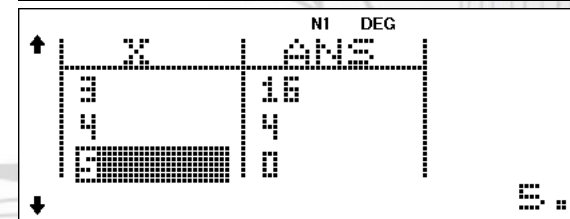
- What is t when $V(t) = 0$?
- $V(t) = 4(5 - t)^2$
- Substitute:
- $0 = 4(5 - t)^2$
- Solve for t :
- $0 = (5 - t)^2$
- $0 = 5 - t$
- $t = 5 \text{ minutes}$



NI DEG W-VIEW
4(5-x)²



NI DEG
↑ x ANS
0 100
1 64
2 36
↓

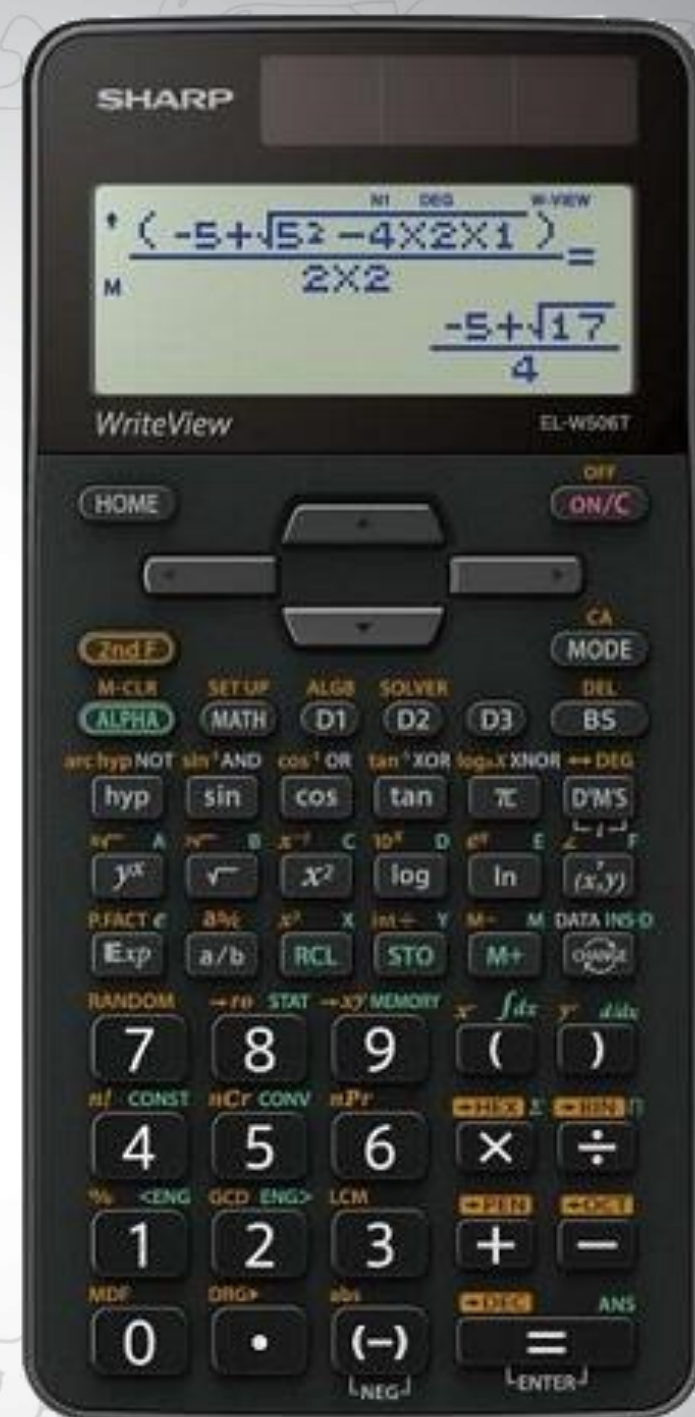


NI DEG
↑ x ANS
3 16
4 9
5 0
↓



Comments

- EL-W506T is the perfect calculator for AP and IEB maths curriculum
- Can be ordered in bulk from SMD directly at better than retail pricing.
- Available at Takealot, PNA, Loot, Makro and more!



Junior Calculator

- EL-W535SA – cheaper and 422 functions
 - Ideal for grade 7 – 9 students
- 500 000 calculators given to No-Fee school students in Gauteng by the department of education
 - With a 40% improvement between the pre- and post-tests after training.



Thank you for your valuable time!

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