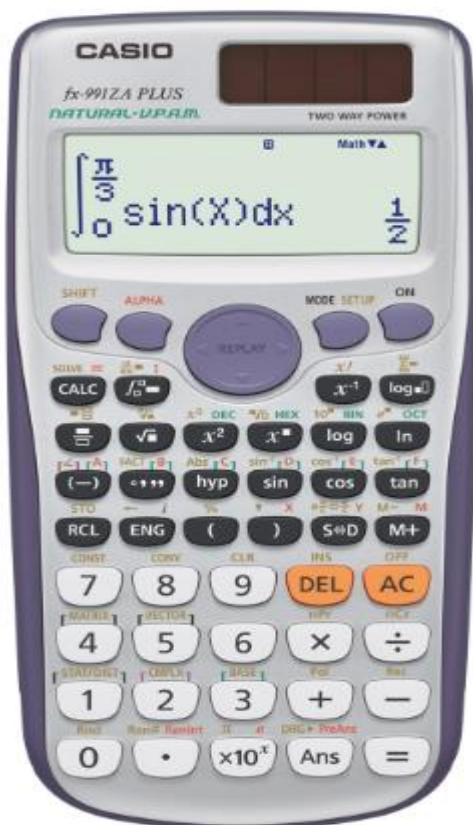


CASIO®

GRADE 12 MATHS LITERACY EXAM QUESTIONS FX 991 ZA- PLUS CALCULATOR WORKSHEET

This worksheet covers past exam paper questions. I would like to acknowledge Advantage Learn for giving access to their website. <https://advantagelearn.com/grade-12-past-exam-papers/>



MODES:

1: COMP	2: CMPLX
3: STAT	4: BASE-N
5: EQN	6: MATRIX
7: TABLE	8: VECTOR

Before we start always remember to clear the memory of our calculator!

SHIFT **9**

Choose Option 3: All

Reset All? Press **≡** Press **AC**

Be sure to put the calculator into NORMAL, as currently answers will appear in scientific notation.

SHIFT **MODE**

Choose Option 8: NORM

Choose Option 2: (Option 1 will leave answers as is in scientific notation- this is ideal for Physical Science)

You are now ready to use the Calculator effectively and correctly! 😊

ROUNDING OFF:

Press **SHIFT** **MODE**

Choose Option 6: Fix

```

1:MthIO 2:LineIO
3:Deg   4:Rad
5:Gra   6:Fix
7:Sci   8:Norm
    
```

Fix 0~9?

Select the number of Decimal Places you want to fix it to. Eg 2

Note the word FIX on the top of your screen.

All answers will now be rounded off to 2 decimal places.

Once you have finished rounding off always go back to NORMAL Mode.

CONVERTING:

We are able to use our calculator to do some conversions. For this make sure you have the lid of your calculator readily available.

The following Unit Conversions can be done:

Restoring Mode Default Settings **SHIFT** **7** (CLR) **1** (Setup) **□** (Yes)
 (COMP, Deg, Norm1, MINO - MathO)

Initializing the Calculator **SHIFT** **7** (CLR) **2** (All) **□** (Yes)

MthIO - MathO **SHIFT** **MODE** (SETUP) **1** (MINO) **1** (MathO)

MthIO - LineO **SHIFT** **MODE** (SETUP) **1** (MINO) **2** (LineO)

LineIO **SHIFT** **MODE** (SETUP) **2** (LineO)

Contrast Setting **SHIFT** **MODE** (SETUP) **4** (4CONTR)

Improper Fraction **□**

Mixed Fraction **SHIFT** **□** ($\frac{\square}{\square}$)

Scientific Constants **SHIFT** **7** (CONST) **0** **1** - **4** **0**

No.	Symbol	No.	Symbol	No.	Symbol	No.	Symbol
01	mp	11	Fe	21	$\mu\mu$	31	σ
02	mn	12	λ_c	22	F	32	ϵ_0
03	me	13	γ_p	23	e	33	μ_0
04	m_μ	14	$\lambda_{c,p}$	24	NA	34	ϕ_0
05	ao	15	$\lambda_{c,n}$	25	k	35	g
06	h	16	R ∞	26	V _m	36	G ₀
07	μ_N	17	u	27	R	37	Z ₀
08	μ_B	18	μ_p	28	C ₀	38	t
09	h	19	μ_e	29	C ₁	39	G
10	α	20	μ_n	30	C ₂	40	atm

Unit Conversions **SHIFT** **8** (CONV) **0** **1** - **4** **0**

No.	Unit	No.	Unit	No.	Unit	No.	Unit
01	in → cm	11	acre → m ²	21	oz → g	31	kgf/cm ² → Pa
02	cm → in	12	m ² → acre	22	g → oz	32	Pa → kgf/cm ²
03	ft → m	13	gal(US) → ℓ	23	lb → kg	33	kgf·m → J
04	m → ft	14	ℓ → gal(US)	24	kg → lb	34	J → kgf·m
05	yd → m	15	gal(UK) → ℓ	25	atm → Pa	35	lb/ft ² → kPa
06	m → yd	16	ℓ → gal(UK)	26	Pa → atm	36	kPa → lb/ft ²
07	mile → km	17	pc → km	27	mmHg → Pa	37	°F → °C
08	km → mile	18	km → pc	28	Pa → mmHg	38	°C → °F
09	n mile → m	19	km/h → m/s	29	hp → kW	39	J → cal
10	m → n mile	20	m/s → km/h	30	kW → hp	40	cal → J

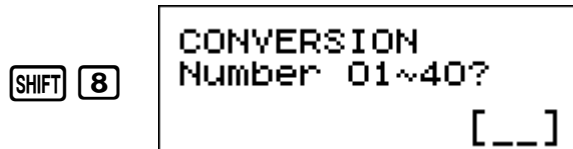
Let's see how this works:

Helena's neighbour, Siyethaba, complains that her pool water is too cold to swim in. The temperature of Siyethaba's pool water is currently 19 °C and she says she will only swim if the temperature of the pool water is 25 °C. Calculate what the temperature change would be in °F.

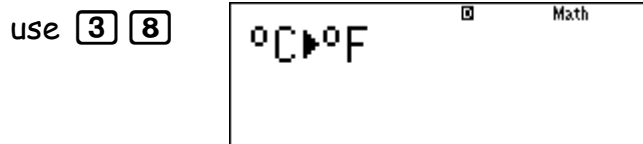
We need to do two conversions:

19 C= _____ and 25 C= _____

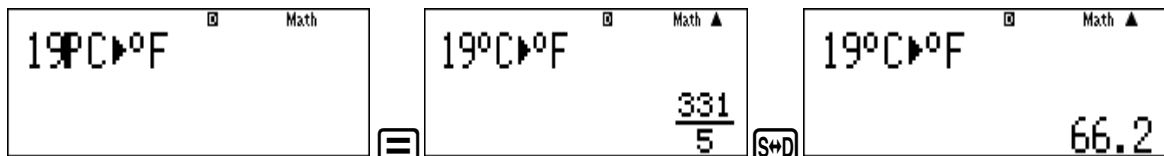
Follow these Steps:



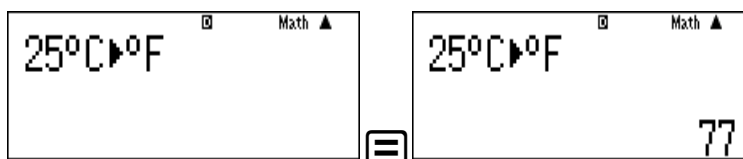
Choose which conversion you are doing. We want to go from C to F so we will



NB: Use the replay button to move you around and enter in the relevant value



Do the same for the 25 C.



The difference is 77 F- 66.2 F= 10.8 F

Here is another example for you to try:

The cake must be baked at 356 °F.

Determine to what degree Celsius the oven should be turned.

You may use the following formula:

$$^{\circ}\text{C} = (^{\circ}\text{F} - 32^{\circ}) \div 1,8$$

SOLVE: (advanced learners):

Changing the subject of the formula using the  button.

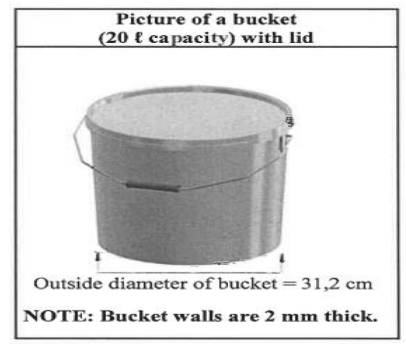
3.2.1 Determine the maximum height (in cm) of the water in the bucket if the outside diameter of the bucket is 31,2 cm.

You may use the formula:

Volume of a cylinder = $\pi \times (\text{radius})^2 \times \text{height}$

where $\pi = 3,142$ and $1 \ell = 1\,000 \text{ cm}^3$

(7)



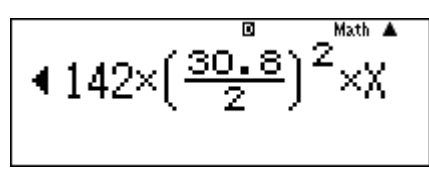
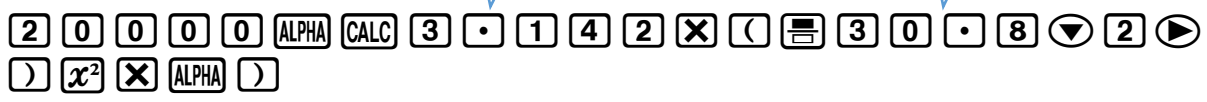
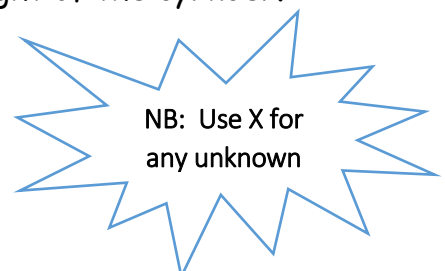
This is a great way to check our working.

$1L = 1000 \text{ cm}^3$ therefore $20L = 20000 \text{ cm}^3$ (This is the volume of our cylinder)

Therefore all we are left to do is calculate the height of the cylinder.

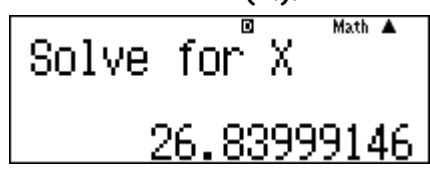
Follow these steps:

Step 1: Substitute.

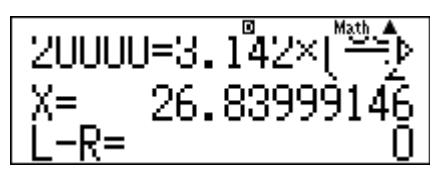


We need to solve the unknown value (X).

Step 2: **SHIFT** **CALC**



Press **=**



Therefore your height is 26.84cm.

TIME:

Remember when dealing with time there are 60 seconds in a minute and 60 minutes in an hour. A calculator doesn't know this unless you tell it. You are able to work out Hours, Minutes and Seconds by using the time key.



Rule 1: Always work in Hours, Minutes and Seconds!

Rule 2: Always remember to push the Time Button after every Hour, Minute and Second!

Add or Subtract Time:

Table tennis players, as all sports players, are serious about their fitness levels.

2.3.1 A game started at 10:08 and lasted 1 hour and 58 minutes. What time did the game end?

10:08+1 Hour58minutes= _____

To do this follow the Key Log:

1 **0** **00** **0** **8** **00** **0** **0** **+** **1** **5** **8** **00** **0** **0**

10⁰08⁰⁰+1⁵8⁰⁰ **▶**
12⁰6⁰

The game ended at 12:06pm.

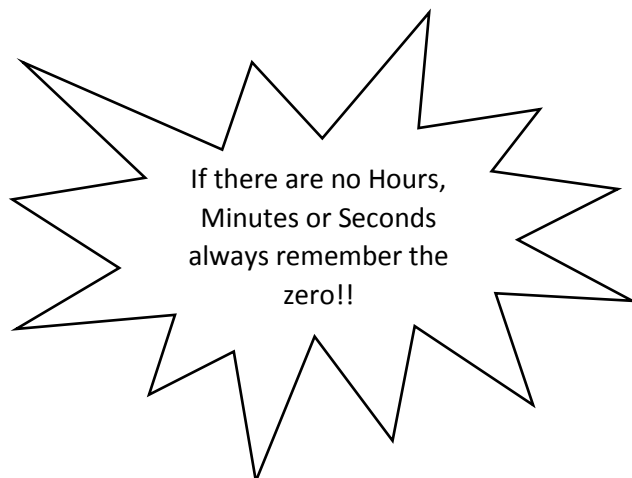
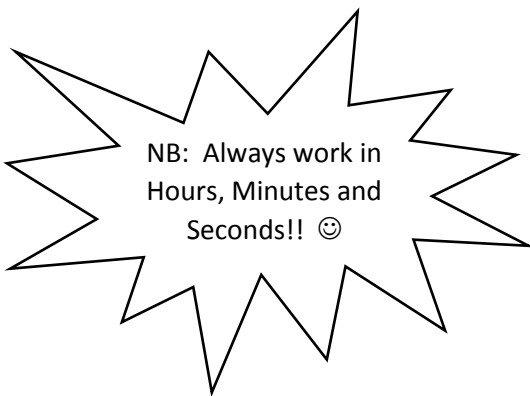
How do I clear an error message?

Let us look at the next example:

- 1.8 Sipho finally started up his own McDonald's store. Below is a till slip from one of his customers. Study the till slip and answer the questions that follow.

2063	
<i>McDonald's South Africa</i>	
<i>Restaurant #1970376</i>	<i>Mall at Carnival</i>
<i>www.mcdonalds.co.za</i>	<i>Tel: 011 915 7639</i>
<i>Crew id 31 NTINTILLI Z.</i>	TAX INVOICE
<i>ORD #63 REG #20 – 02/05/2018</i>	<i>16:57:56</i>
QTY ITEM	TOTAL
<i>1 Cajun Chicken</i>	<i>30.00</i>
<i>3 Cheeseburger</i>	<i>49.50</i>
<i>3 Ketchup</i>	<i>0.00</i>
<i>2 Chicken Burger</i>	<i>32.00</i>
<i>Subtotal</i>	<i>111.50</i>
<i>Take-out Total (incl VAT)</i>	<i>111.50</i>
<i>Cash Tendered</i>	<i>200.00</i>
<i>Change</i>	<i>88.50</i>
TOTAL INCLUDES VAT OF 15%	13.70

1.8.2 The order takes exactly 13 minutes to complete. What time will the order be ready?



1 6 000 5 7 000 5 6 000 + 0 000 1 3 000 0 000 =

Math ▲
16°57'56" + 0°13'00" ▶
17°10'56"

Therefore, the order will be ready at 17:10:56.

Changing from fractions or decimals into time:

	2:10 PM – 1:15 PM** Ethiopian	18h 5m JNB–BKK	1 stop 3h 30m ADD	R7 609 round trip	▼
	5:25 PM – 1:30 PM** Kenya Airways	15h 5m JNB–BKK	1 stop 1h 29m NBO	R8 369 round trip	▼
	10:20 PM – 8:50 PM** Emirates	17h 30m JNB–BKK	1 stop 3h 30m DXB	R8 640 round trip	▼

2.3.1 Ethiopian Airlines departs from Johannesburg (JNB) and has a stop-over in Addis Ababa (ADD) before flying to Bangkok (BKK). The flight time from JNB to ADD was 5 hours 15 minutes and from ADD to BKK was $9\frac{1}{3}$ hours.

If Miss SA decided to travel using Ethiopian Airlines, show how the total travelling time given as 18 hours and 5 minutes was calculated.

Let us break this up first:

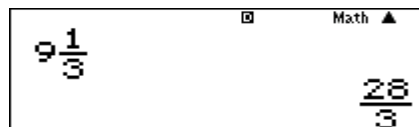
JNB to ADD = 5 Hours 15 Minutes

Stop Over in ADD = 3 Hours 30 Minutes

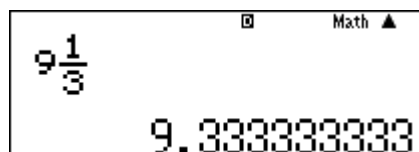
ADD to BKK = $9\frac{1}{3}$ Hours

Convert $9\frac{1}{3}$ Hours into time

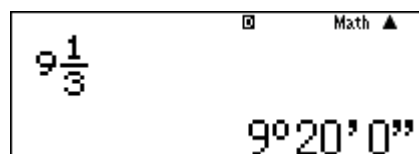
SHIFT  9  1  3 















Press 

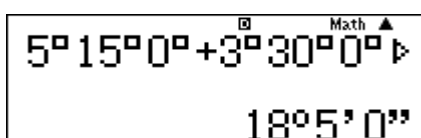


Press 



Now add up all the times:

 5  1 5  0  +  3  3  0  0  +  9  2 0 0 



Stats Mode:

MODE 3

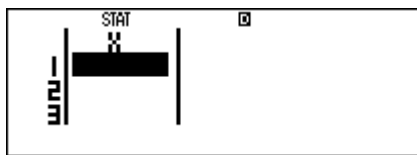
```

1: 1-VAR  2: A+BX
3: L+CX2 4: ln X
5: eX     6: A·BX
7: A·XB  8: 1/X
    
```

We will only focus on Option 1:

Key	Menu Item	Explanation
1.	1-VAR	Single variable / Data handling

Select 1



Read the question below and enter the data.

2.4

TABLE 1 on ANNEXURE D shows the top marginal tax rate for individuals in the G20 countries. This table provides present and past data of the top marginal tax rates. It was updated in January 2019.

Use the information in ANNEXURE D to answer the questions that follow.

ANNEXURE D

QUESTION 2.4

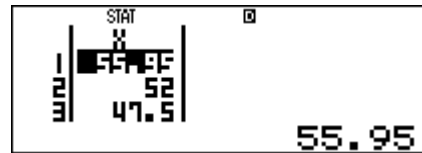
TABLE 1: TOP MARGINAL TAX RATES FOR INDIVIDUALS IN THE G20 COUNTRIES

COUNTRY	UNIT %	
	2019	PREVIOUS
Japan	55,95	55,95
Netherlands	52,00	52
Germany	47,50	47,5
Australia	45,00	45
China	45,00	45
France	45,00	45
South Africa	45,00	45
Spain	45,00	45
United Kingdom	45,00	45
Italy	43,00	43
South Korea	40,00	40
Switzerland	40,00	40
United States of America	37,00	39,6

India	35,88	35,54
Argentina	35,00	35
Mexico	35,00	35
Turkey	35,00	35
Canada	33,00	33
Indonesia	30,00	30
Brazil	27,50	27,5
Singapore	22,00	22
Russia	13,00	13
Saudi Arabia	0,00	0

[Source: tradingeconomics.com/country-list]

5 5 . 9 5 = 5 2 . 0 0 =



Be sure to enter all the data starting with Japan and including the Zero of Saudi Arabia

NB: Always check the data is correct

AC SHIFT 1

1:Type 2:Data
3:Sum 4:Var
5:Distr 6:MinMax

Stats Menu Explained:

Key	Menu Item	Explanation
1. Type	Stats Menu	Changes stats type
2. Data		Displays the data that you input
3. Sum	1. Σx^2 2. Σx	1. Sum of the squares 2. Sum/ Total of data
4. Var	1. n 2. \bar{x} 3. δx 4. sx	Number of samples Mean Population standard deviation Sample standard deviation
5. Distr	Not for Maths Lit	
6. MinMax	1. MinX 2. MaxX 3. Q1 4. med 5. Q3	1. Indicates the minimum value 2. Indicates the maximum value 3. Quartile 1 4. Median (Q2) 5. Quartile 3

Now to answer the questions:

2.4.3 Use the 2019 top marginal tax rate and answer the following questions:

(a) Determine quartile 2 (2)

(b) The interquartile range is given as 12.

Verify, showing ALL calculations, whether the given interquartile range is CORRECT. (4)

a) The Q2 is our Median. This is found in Option 6

```
1:minX  2:maxX
3:Q1    4:med
5:Q3
```

4 =

```
STAT
med
40
```

Therefore the Q2 = 40.

b) To calculate the interquartile range you need the Q1 & Q3 Values.

AC SHIFT 1

```
1:Type  2:Data
3:Sum   4:Var
5:Distr 6:MinMax
```

6

```
1:minX  2:maxX
3:Q1    4:med
5:Q3
```

3 =

```
STAT
Q1
33
```

Repeat the same process again to find the Q3.

AC SHIFT 1

```
1:Type  2:Data
3:Sum   4:Var
5:Distr 6:MinMax
```

6

```
1:minX  2:maxX
3:Q1    4:med
5:Q3
```

5 =

```
STAT
Q3
45
```

$Q3 - Q1 = 12$.

Therefore the interquartile range given is correct.

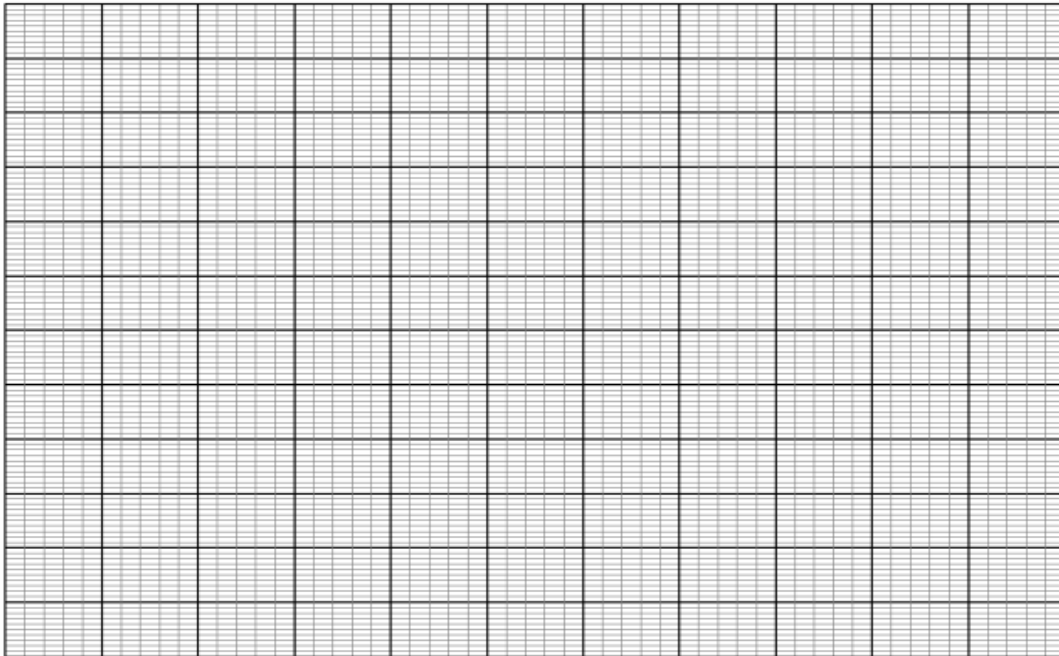
TABLES: (advanced learners)

Quickety Wash laundromat is offering a special deal on the washing and ironing of laundry. According to this deal, they charge a R10 service fee and then R21 per kilogram (or part thereof) of laundry handed in for washing and ironing.

- 1.1 Determine the equation that represents the special deal offered by *Quickety Wash*. Let 'C' represent the cost and 'k' the number of kilograms of laundry handed in by a customer.

$$C = R10 + (R21 \times K)$$

- 1.2 Using the equation you determined in Question 1.1, draw a graph that best represents the special deal offered by *Quickety Wash* for up to a maximum of 10 kg of laundry.



(10)

Step 1: Go into Tables Mode **MODE** **7**

$f(X) =$

Step 2: Enter in the equation (we do not have the letter K so we will use an X)

1 **0** **+** **(** **2** **1** **×** **ALPHA** **)** **)**

$f(X) = 10 + (21 \times X)$

Step 3: Press **=** and **=** again.



What is a start? _____

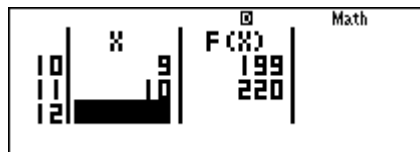
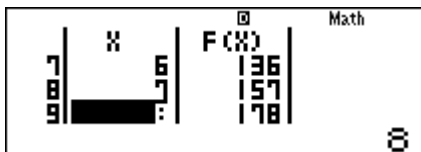
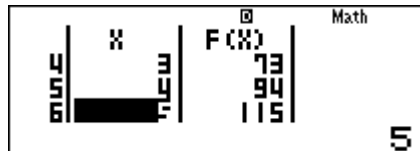
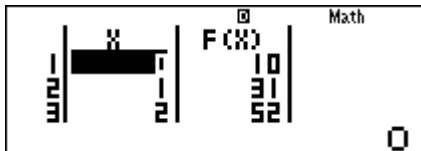
What is an end? _____

What is a step? _____

Step 4: Choose a start point. 0 and Press =

Step 5: Choose an end point. 10 and Press =

Step 6: Choose a step. 1 and Press =



This can be put onto a table or used to draw a graph.

X	0	1	2	3	4	5	6	7	8	9	10
Y	10	31	52	73	94	115	136	157	178	199	220

It can be used to calculate other predictions too, which might require the start and end to be adjusted.

Worksheet by:

Lauren Izaaks