NAME: _____

Algebra One
Calculator Tutorials
TI 84 Plus

Part One
Unit 1 to Unit 5

<u>CONTENTS</u>

*Please Note: You must select "Current Page" to avoid printing the entire document. *

Getting to Know Your Calculator

Important Keys

| ON | Turns the calculator on |

| 2ND | Accesses the blue features above the keys |

| ENTER | Means = |

| X,T,θ ,n | Inserts an X |

| CLEAR | Erases what you typed. Erases the entire screen if pressed twice |

| DEL | Erases the value under the cursor |

| STO> | Stores values to variables |

| ^ | Tells the calculator the next number is an exponent |

| x^2 | Raises a number only to the 2nd power |

| (-) | Indicates a negative number |

| – | Indicates subtraction |

| ALPHA | Accesses the green features above the keys |

| MODE | Formats the way the calculator enters and displays information. The settings should look like this screen unless otherwise instructed |
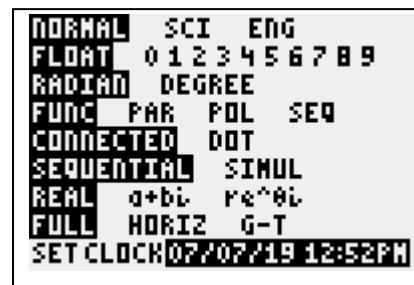
Important Keystrokes

2ND	ON	[OFF] - Turns the calculator off
2ND	X^2	[√] – Accesses square root function
2ND	MODE	[QUIT] - Turns the calculator off
2ND	DEL	[INS] - Inserts a value before the cursor
2ND	ENTER	[ENTRY] - Inserts previous problem
2ND	(-)	[ANS] – Inserts the answer to the previous problem
2ND	0	[CATALOG] – Accesses all functions and symbols

2ND + 7 1   Restore original factory settings

Name: _____   **Date:** _____
Period: _____

<u>Graphing Calculator Scavenger Hunt</u>
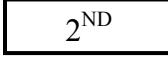
1.) Press | 2ND | | + | | ENTER | What is the ID # of your

calculator? _____

2.) For help, what website can you visit? _____

3.) What happens to the screen when you push | 2ND | | ⬆ | over and
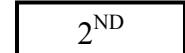
over? | 2ND | | ⬇ | over and over? _____

_____

4.) What letter of the alphabet is located above | ÷ | ? _____

5.) To get the calculator to solve the following problem $2\{3 + 10 / 2 + 6^2 - (4 + 2)\}$, what
do you do to get the { and }? _____

6.) Use your calculator to answer the following?

a.) 2×41.587 b.) $-17 - 26$ c.) $2578 / 4$ d.) $369 + 578$

_____   _____   _____   _____
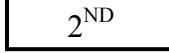
e.) Now press | 2ND | | ENTER | two times. What pops up on your screen?

_____

f.) Arrow down and change the 4 to 2. What answer did you get? _____

g.) How will this feature be helpful? _____

7.) Press | 2ND | | 0 | to access the calculator's catalog. Scroll up, to

access symbols. What is the first symbol? _____What is the last symbol? _____

8.) Press ┌─────┐ ┌─────┐ to access the calculator's catalog. An **A**
              │ 2ND │ │ 0 │
              └─────┘ └─────┘

appears in the top right corner of the screen. This means the calculator is in alphabetical

mode. Press ┌─────┐ . What is the 5th entry in the L's? _____
            │) │
            └─────┘

What do these letter stand for? _____

9.) Enter this problem into the calculator and press ┌─────────┐ . $2.4 \times 3.7 =$ _____.
                                                         │ ENTER │
                                                         └─────────┘

Now press ┌────────┐ ┌────────┐   Float ┌────────┐   to 0 and press ┌─────────┐
          │ MODE │ │   ↓   │   │   →   │   │ ENTER │
          └────────┘ └────────┘   └────────┘   └─────────┘

Now press ┌─────┐ ┌────────┐ to return to the home screen and
          │ 2ND │ │ MODE │
          └─────┘ └────────┘

Press ┌─────┐ ┌─────────┐ and the original problem should appear on the
      │ 2ND │ │ ENTER │
      └─────┘ └─────────┘

screen , now press ┌─────────┐ . What appears on the screen? _____
                   │ ENTER │
                   └─────────┘

Think about this number in relation to the answer you got before. What did the

calculator do? _____

Repeat this same process except select 2 under the Float option. Return to the home

screen, recall the original problem and press ┌─────────┐ . What number appears on
                                               │ ENTER │
                                               └─────────┘

the screen? _____

What did the calculator do this time? _____

10.) a.) Enter $(-2)^2$ into the calculator, what answer did you get? _____

b.) Now enter -2^2 into the calculator, what answer did you get this time? _____

c.) Why do you think you got two different answers? _____

_____

6

Absolute Value

Problem: Find $\left|-14\right|$

Press | MATH |

Press | $\longrightarrow$ | to select NUM

```
MATH NUM CPX PRB
1▮abs(
2:round(
3:iPart(
4:fPart(
5:int(
6:min(
7↓max(
```

⟵ Absolute value will be highlighted

Press | ENTER |

```
abs(▮
```

Press | (–) | | 1 | | 4 | |) | | ENTER |

```
abs(-14)
            14
```

Practice: Find the absolute value.

1.) $\left|61\right|$ 　　　　　　　2.) $\left|-4\right|$ 　　　　　　　3.) $\left|-297\right|$

Simplifying Fractions

Fractions ⟶ **Decimals**

Problem: Convert $\dfrac{4}{5}$ to a decimal.

Press | 4 | ÷ | 5 | ENTER

```
4/5
              .8
```

Practice: Convert each fraction to a decimal.

1.) $\dfrac{3}{8}$
2.) $\dfrac{3}{4}$
3.) $\dfrac{2}{3}$

Simplifying Fractions

Decimals ⟶ Fractions

Problem: Convert 1.4 to a fraction.

Press
1	•	4	MATH

```
MATH NUM CPX PRB
1:▶Frac
2:▶Dec
3:³
4:³√(
5:ˣ√
6:fMin(
7↓fMax(
```

Fraction will be highlighted.

Press ENTER

```
1.4▶Frac
```

Press ENTER
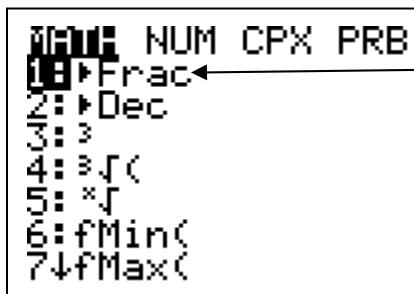
```
1.4▶Frac
              7/5
```

Practice: Convert each decimal to a fraction.

1.) 0.25   2.) 0.3   3.) $0.\overline{3}$

Simplifying Fractions

Reducing Fractions

Problem: Reduce $\dfrac{12}{18}$ to lowest terms.

Press [12] [÷] [18] [MATH]

```
MATH NUM CPX PRB
1▶Frac
2:▶Dec
3:³
4:³√(
5:ˣ√
6:fMin(
7↓fMax(
```
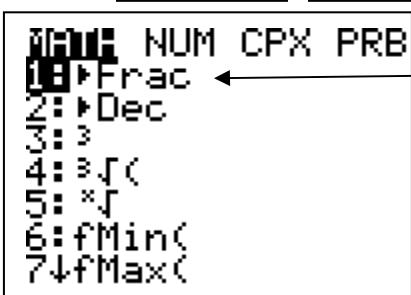
Fraction will be highlighted.

Press [ENTER]

```
12/18▶Frac
```

Press [ENTER]

```
12/18▶Frac
          2/3
```

Practice: Reduce each fraction to lowest terms.

1.) $\dfrac{5}{10}$

2.) $\dfrac{16}{72}$

3.) $\dfrac{18}{24}$

Adding Fractions

Problem: $\dfrac{4}{5} + \dfrac{7}{8}$

Press

(	4	÷	5	)

+

(	7	÷	8	)

ENTER

```
(4/5)+(7/8)
          1.675
```

Practice: Add.

1.) $\dfrac{2}{3} + \dfrac{4}{7}$

2.) $\dfrac{3}{8} + \dfrac{5}{12}$

3.) $\dfrac{6}{7} + \dfrac{12}{5}$

Subtracting Fractions

Problem: $\dfrac{4}{5} - \dfrac{7}{8}$

Press

(	4	÷	5	)

-

(	7	÷	8	)

ENTER

```
(4/5)-(7/8)
           -.075
```

Practice: Subtract.

1.) $\dfrac{2}{3} - \dfrac{4}{7}$

2.) $\dfrac{3}{8} - \dfrac{5}{12}$

3.) $\dfrac{6}{7} - \dfrac{12}{5}$

Multiplying Fractions

Problem: $\dfrac{4}{5} \times \dfrac{7}{8}$

Press

(	4	÷	5	)

×

(	7	÷	8	)

ENTER

```
(4/5)*(7/8)
              .7
```

Practice: Multiply.

1.) $\dfrac{2}{3} \times \dfrac{4}{7}$

2.) $\dfrac{3}{8} \times \dfrac{5}{12}$

3.) $\dfrac{6}{7} \times \dfrac{12}{5}$

Dividing Fractions

Problem: $\dfrac{4}{5} \div \dfrac{7}{8}$

Press

(	4	÷	5	)

÷

(	7	÷	8	)

ENTER

```
(4/5)/(7/8)
     .9142857143
```

Practice: Divide.

1.) $\dfrac{2}{3} \div \dfrac{4}{7}$

2.) $\dfrac{3}{8} \div \dfrac{5}{12}$

3.) $\dfrac{6}{7} \div \dfrac{12}{5}$

Exponents

Problem: Evaluate 5^2.

Press | 5 | | ^ | | 2 | | ENTER |

```
5^2
              25
```

x^2

can be used in place of

^

Only when you have a power of 2!

Practice: Evaluate.

1.) 4^3 2.) $(-10)^2$ 3.) -10^2

Square Roots

Problem: Simplify $\sqrt{121}$.

Press | 2ND | x^2 | 121 |) | ENTER

```
√(121)
              11
```

Practice: Simplify.

1.) $\sqrt{169}$ 2.) $\sqrt{81}$ 3.) $\sqrt{96}$

Evaluate Expressions

Problem: Evaluate $\dfrac{2x+5}{x-4}$ when x = -7

You MUST use ( ) around everything on top AND AGAIN around everything on the bottom!!!!!

Rewrite the problem $\dfrac{(2(-7)-5)}{((-7)-4)}$

Press

Numerator

(	2	(	(−)	7	)	+	5	)

÷

(	(	(−)	7	)	−	4	)

Denominator

Enter

```
(2(-7)+5)/((-7)-
4)
     .8181818182
```

Practice:

1.) $5x^4 - 46$ when x = -2

2.) $\dfrac{11-3x}{2x}$ when x = 5

3.) $\dfrac{2x}{11-43}$ when x = -1

Making a Table from a Function Rule

Format Table

Press [2ND] [WINDOW]

```
TABLE SETUP
 TblStart=0
 △Tbl=1
Indpnt: Auto Ask
Depend: Auto Ask
```

Table will begin at this value.
Tells calculator what to count by.

Both need Auto to be highlighted.
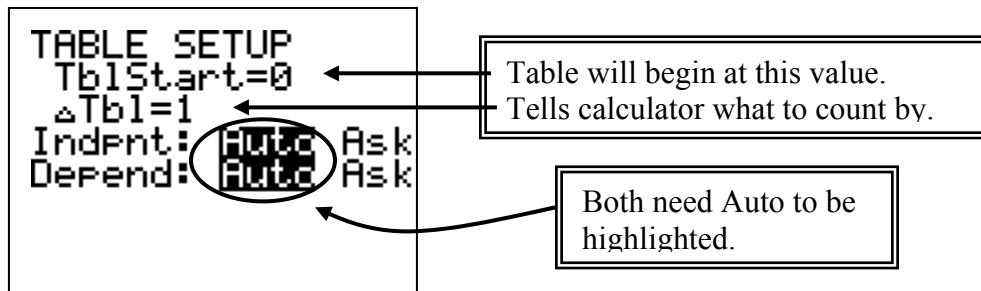
Problem: Make a table for $f(n) = -2n^2 + 7$.

Press [y =] [(-)] [2] [X, T, θ, n] [^] [2] [+] [7]

```
Plot1  Plot2  Plot3
\Y1 ■ -2X^2+7
\Y2 =
\Y3 =
\Y4 =
\Y5 =
\Y6 =
\Y7 =
```
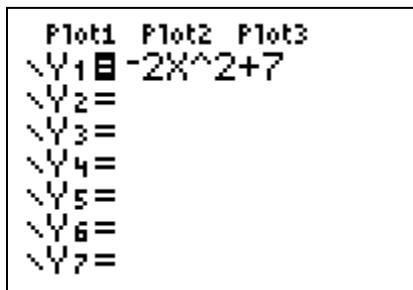
Press [2ND] [GRAPH]

```
  X    | Y1
  0    | 7
  1    | 5
  2    | -1
  3    | -11
  4    | -25
  5    | -43
  6    | -65
X=0
```

Practice: Make a table for each function.

1.) $f(x) = x + 3$ 2.) $y = x^3$ 3.) $f(x) = -x + 5$

Find the Range Given a Domain

Problem: For the function $y = -2x + 5$, find the range when the domain is 8.

Press | 2ND | | WINDOW |

```
TABLE SETUP
 TblStart=0
 ∆Tbl=1
Indpnt: Auto ASK
Depend: Auto Ask
```

Use arrows to select Ask and press Enter.

Press | y = | | (-) | | 2 | | X, T, θ, n | | + | | 5 |

```
Plot1 Plot2 Plot3
\Y1 ▓ -2X+5
\Y2=
\Y3=
\Y4=
\Y5=
\Y6=
\Y7=
```

Press | 2ND | | GRAPH |

```
  X  | Y1 |
 ▆▆▆ |    |
     |    |

X=
```

Make sure the X column is highlighted.

Press | 8 | | ENTER |

```
  X  | Y1 |
 8   | -11 |
 ▆▆▆ |    |

X=
```

Practice: Find the range given the domain value.

1.) $f(x) = 3x + 2$, domain $= 4$

2.) $y = -x + 2$, domain $= -2$

3.) $y = 7 - x$, domain $= 9$

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# Linear Regression (Finding a Function Rule from a Table)

Problem: Find the equation of a line containing the following points in the table.

x	f(x)
1	5
2	6
3	7
4	8

Enter the values in the x column in L1.
Enter the values in the f(x) column in L2.

Press | STAT | | ENTER |

```
L1      L2      L3      2

1       5       ------
2       6
3       7
4       8
------
L2(5) =
```

Press | 2ND | | MODE | to return to the main screen

Press | STAT |

```
EDIT CALC TESTS
1:Edit…
2:SortA(
3:SortD(
4:ClrList
5:SetUpEditor
```

Press | ⟶ | to select CALC

```
EDIT CALC TESTS
1:1-Var Stats
2:2-Var Stats
3:Med-Med
4:LinReg(ax+b)
5:QuadReg
6:CubicReg
7↓QuartReg
```

Press [4] to select LinReg(ax+b)

```
LinReg(ax+b)
```

Press [2ND] [1] [,] [2ND] [2]

```
LinReg(ax+b) L₁,
L₂
```

Press [ENTER]

```
LinReg
 y=ax+b
 a=1
 b=4
```

Practice: Find the equation of a line containing the following points in the table.

1.)

x	f(x)
4	10
6	11.5
8	13
10	14.5

2.)

x	f(x)
-3	-2
-1	-8
1	-14
3	-20

3.)

x	f(x)
0	15
1	8
2	1
3	-6

Mean

Problem: Find the mean of the following set of numbers 45, 28, 53, 92, 85, 28

Put the numbers into L1

```
L1      L2      L3      1
 45     ------  ------
 28
 53
 92
 85
 28
------
L1(7)=
```

Press [2ND] [STAT]

```
NAMES  OPS  MATH
1:L1
2:L2
3:L3
4:L4
5:L5
6:L6
7↓C
```

Press [⟶] to select MATH

```
NAMES OPS MATH
1:min(
2:max(
3:mean(
4:median(
5:sum(
6:prod(
7↓stdDev(
```
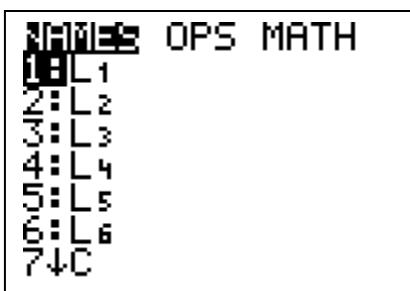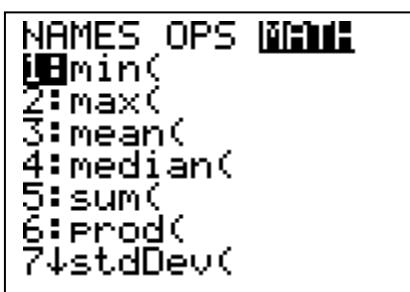
Press [3] to select mean.

```
mean(
```
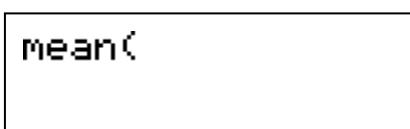
Press | 2ND | 1 |) | ENTER |

```
mean(L₁)
        55.16666667
```

Problems:

1.) Find the mean of 11, 25, 68, 31, 89

2.) Find the mean of 117, 40, 128, 42

3.) Find the mean of 92, 95, 88, 97, 79

Median

Problem: Find the median of the following set of numbers 45, 28, 53, 92, 85, 28

Put the numbers into L1

```
L1      L2      L3      1
45     ------  ------
28
53
92
85
28

L1(7)=
```

Press ⬛ 2ND ⬛   ⬛ STAT ⬛

```
NAMES  OPS  MATH
1:L1
2:L2
3:L3
4:L4
5:L5
6:L6
7↓C
```

Press ⬛ ⟶ ⬛   to select MATH

```
NAMES OPS MATH
1:min(
2:max(
3:mean(
4:median(
5:sum(
6:prod(
7↓stdDev(
```

Press ⬛ 4 ⬛   to select median.

```
median(■
```

Press | 2ND | 1 |) | ENTER

```
median(L₁)
              49
```

Problems:

1.) Find the median of 11, 25, 68, 31, 89

2.) Find the median of 117, 40, 128, 42

3.) Find the median of 92, 95, 88, 97, 79

Factorial

Problem: Find 8!

Press [8] [MATH]

```
MATH NUM CPX PRB
1▶Frac
2:▶Dec
3:3
4:3√(
5:×√
6:fMin(
7↓fMax(
```

Press [⟶] to select PRB

```
MATH NUM CPX PRB
1:rand
2:nPr
3:nCr
4:!
5:randInt(
6:randNorm(
7:randBin(
```

Press [4] to select !

Press [ENTER]

```
8!
            40320
```
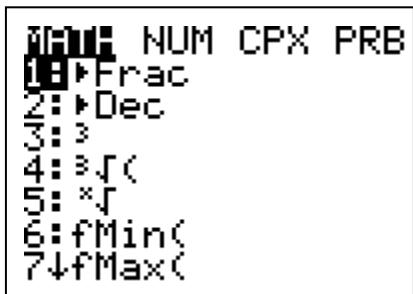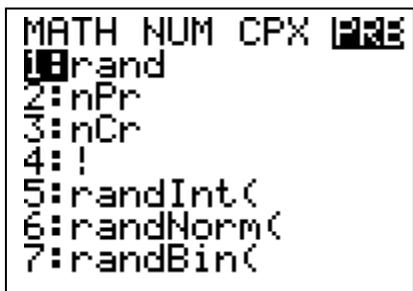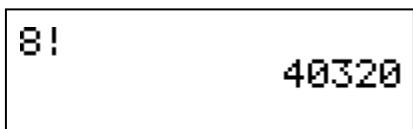
Problems:

1. 11!   2. 4!   3. 9!

Permutations

Problem: Find $_8P_3$

Press | 8 | | MATH |

```
MATH NUM CPX PRB
1▶Frac
2:▶Dec
3:3
4:3√(
5:×√
6:fMin(
7↓fMax(
```

Press | ⟶ | to select PRB

```
MATH NUM CPX PRB
1:rand
2:nPr
3:nCr
4:!
5:randInt(
6:randNorm(
7:randBin(
```

Press | 2 | to select nPr

```
8 nPr
```

Press | 3 | | ENTER |

```
8 nPr 3
            336
```
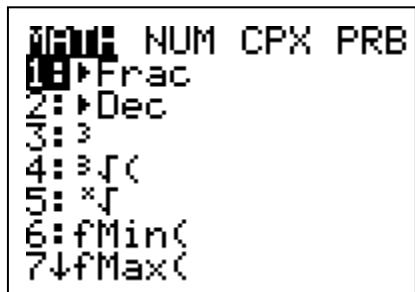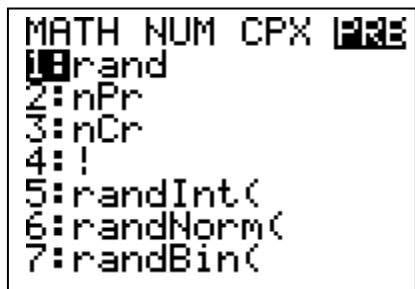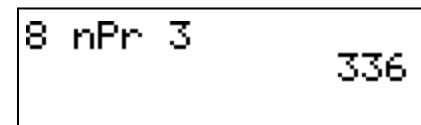
Problems:

1.) Find $_5P_2$

2.) Find $_{11}P_4$

3.) Find $_6P_5$

Combinations

Problem: Find $_8C_3$

Press | 8 | MATH

```
MATH  NUM  CPX  PRB
1▐▶Frac
2:▶Dec
3: ³
4: ³√(
5: ˣ√
6:fMin(
7↓fMax(
```

Press | ⟶ | to select PRB

```
MATH NUM CPX  PRB
1▐rand
2:nPr
3:nCr
4: !
5:randInt(
6:randNorm(
7:randBin(
```

Press | 3 | to select nCr

```
8 nCr
```

Press | 3 | ENTER

```
8 nCr 3
              56
```
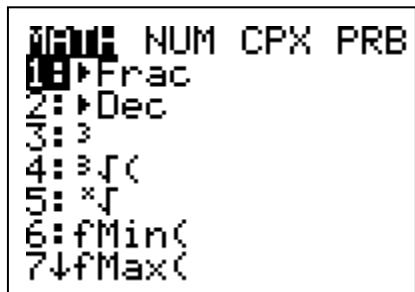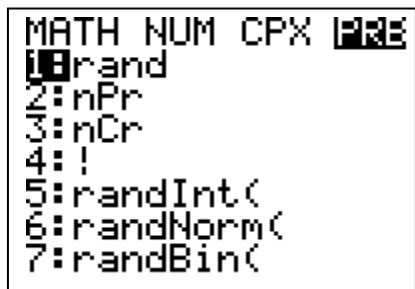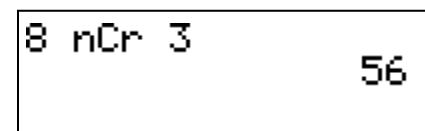
Problems:

1.) Find $_5C_2$

2.) Find $_{11}C_4$

3.) Find $_6C_5$