

# Graphics Calculator Skill Drill Series

## Notes for using the Skill Drill Sheets

- This worksheet series was designed with the NSW General Mathematics course in mind. The questions are randomly sequenced and are intended, as the title implies, for students to 'drill' graphic calculator skills.
- The Skill Drill sheets also act as a 'soft' revision process for General Mathematics students.
- The majority of questions are applicable for both Yr 11 and Yr 12 General Maths students. However some apply to Yr 12 only.
- You will notice that trigonometry questions involving radians and grades have been included. This was a deliberate inclusion and serves to force students into the SET-UP for RUN mode so that when the calculator is reset for assessment tasks they are less likely to forget to change the default (radian) setting to degrees. It is recommended to point this out clearly to students.
- Many questions request rounding to a given number of significant figures or decimal places. This is intended to give students practice in rounding and significant figures. It is not intended that students use the 'Fix' and 'Sci' functions within the SETUP to do this.
- NOTE: If you desire to modify this activity and therefore desire the original word document you may request it by emailing [casio.edusupport@shriro.com.au](mailto:casio.edusupport@shriro.com.au).

## The skills covered by the Skill Drill Series include:

- RUN Mode
  - o Scientific Notation
  - o Time
  - o Trigonometry
  - o Roots of numbers
  - o EXP
  - o Permutations and Combinations
- STAT Mode
  - o Finding statistics
  - o Drawing box plots
  - o Finding equations given 2 points
- EQUA
  - o Solving equations

# Graphics Calculator Skill Drill Sheet 1 Name: \_\_\_\_\_

(V14.2.08)

These skill sheets are designed to help you become familiar with your Graphics Calculator.

You must use only your Graphics Calculator for these questions.

You should not need to use working-out paper for these questions.

Keep these sheets for revision purposes.

- 1) What is 3 hrs 58 min later than 4:17pm?
- 2) Convert 24 degrees, 45 minutes and 17 seconds to degrees to 2 decimal places
- 3) Calculate  $\sin 6.3$  radians as a decimal to 3sf
- 4) Calculate  $\sqrt[5]{12583}$  to 4sf
- 5)  $3.67 \times 10^{23} \div (5.23 \times 10^{14}) =$  (3sf)
- 6) Calculate  $s$  to the nearest minute:  $\sin s = 0.112$
- 7) How many ways can you choose 'President, Vice President and Secretary' from a group of 12 people?
- 8) Convert 72.86 degrees to degrees, minutes and seconds

## 9) STATISTICS:

Consider the following data:

Score	Frequency	Find the:
2	4	Mean =
3	5	Mode =
4	7	Standard Deviation (2dp) =
5	12	Sample Std Dev'n (2sf) =
6	23	Lowest score =
7	18	Lower Quartile =
8	11	Median =
		Upper Quartile =
		Highest Score =

NOW DRAW A BOX AND WHISKER PLOT OF THIS DATA

- 10) Calculate  $r$  to the nearest minute:  $\sin r = 0.512$

- 11) a) For  $t = \frac{\sqrt{h-y}}{5}$ ,  $t = 7$ ,  $h = 13$ . Find  $y$
- 12) Enter this equation into EQUA:  $A = (B-C)^N$   
Now using DEL, change the equation to  $A = (B-C)^N$
- 13) Calculate  $\cos 89.12$  degrees as a decimal to 4sf
- 14) What time is 7 hours 27 minutes before 3:06 pm?
- 15) a) Calculate  $\sqrt[3]{278}$  to 3sf  
b) Calculate  $3\sqrt{278}$  to 3sf
- 16)  $4.97 \times 10^{35} \div (9.56 \times 10^{29}) =$  (2sf)
- 17) Calculate the value of  $\sin 12$  radians (2 sf)
- 18) Calculate  $0.002 \div 340000$  in scientific notation (to 3sf)
- 19) Calculate  $m$  to the nearest minute:  $\tan m = 1.125$
- 20) Find the equation of the straight line which passes through (1, 5) and (27, 51)
- 21) How many 4 person committees can be formed from a group of 12 people?
- 22) Consider  $a = \frac{b+c}{d+e}$  (use EQUA)  
  
If  $a = 21$ ,  $b = 13$ ,  $c = 4.5$ ,  $d = -2$ , find  $e$  (to 3sf).
- 23) Calculate  $\sqrt[4]{3579}$  to 2sf
- 24) In how many ways can 6 books be arranged on a shelf?
- 25) Calc the value of  $\cos 1.4$  grades (2 sf)

## Graphics Calculator Skill Drill Sheet 2 Name: \_\_\_\_\_

- 26) Calculate  $m$  to the nearest minute:  $\sin m = 0.725$
- 27) Calculate  $249 \div 35238$  as a decimal to 6 decimal places
- 28) Calculate  $0.16 \div 23\,000\,000\,000$  and write in scientific notation to 4 sig figs.
- 29) You need to choose a captain and vice captain from a class of 30 students. How many ways can this be done?
- 30) What time is 1 day, 4 hours and 41 minutes before 8:01am on a Friday?
- 31) a) Find the solution to  $45.8^5 \div (9.7 + 435^3)$  (2sf)  
 a) There's a mistake! Change the  $45.8^5$  to  $35.8^5$  without re-entering the whole expression, and then recalculate.

### 32) STATISTICS:

From the data given find the following:

Score	Frequency	Standard deviation =
11	4	Sample standard deviation =
12	7	Median =
13	11	Mode =
14	15	Mean =
15	27	Lower Quartile =
16	13	Upper Quartile =
17	8	
18	3	

NOW DRAW A BOX AND WHISKER PLOT OF THIS DATA

- 33)  $5.93 \times 10^{25} \div (3.68 \times 10^{73}) =$  (3sf)
- 34) Calculate  $\cos 6.1$  radians as a decimal to 4sf
- 35) Calculate  $\sqrt[3]{12500}$  to 4sf

- 36) a) For  $m = \frac{b\sqrt{c}}{4-n}$ ,  $m = 123$ ,  $b = 5$ ,  $c = 17$ . Find  $n$  to 2dp.
- 37) Calculate  $\sin 3.1$  radians as a decimal to 3dp
- 38) Convert 191 degrees, 4 minutes and 37 seconds to degrees (to 1dp)
- 39) The 9 digits, 1 to 9, are written on cards. How many different groups of 5 cards can be made from the 9?
- 40) What time is 17 hours and 4 minutes before 8:01 am Friday?
- 41)  $3.84 \times 10^{-12} \div (4.72 \times 10^{18}) =$  (2sf)
- 42) Calculate  $c$  to the nearest minute:  $\sin c = 0.502$
- 43) In how many different ways can you arrange 5 books on a shelf if you have 8 books to choose from?
- 44) STATISTICS

Consider the following data:

12, 19, 2, 7, 4, 5, 2, 7, 9, 21, 17, 7, 4, 8, 7, 12, 16,  
21, 7, 7, 8, 23, 6, 7, 13, 7, 32, 7, 21, 7, 18

From the above data calculate the following:

Standard deviation =

Sample standard deviation =

Median =

Mode =

Mean =

Lower quartile =

Upper quartile =

**NOW DRAW A BOX AND WHISKER PLOT OF THIS DATA**

Graphics Calculator Skill Drill Sheet 3 Name: \_\_\_\_\_

- 45) Calculate  $0.03 \div 34\,600\,000$  and write in scientific notation (to 2sf)
- 46) Calculate  $\tan 14.8$  radians as a decimal to 4sf
- 47) What time is 18 hours 27 minutes before 11:36 pm?
- 48) Calculate  $\sqrt[9]{35000}$  to 2sf
- 49) Calculate  $\sin 47$  degrees, 15 minutes, 4 seconds as a decimal to 3dp
- 50) The 9 digits, 1 to 9, are written on cards. How many different 5 digit numbers can be made from the 9 digits?
- 51) Find the equation of the straight line which passes through (2, 9) and (14, -3) (write values to 2dp)
- 52) Calculate t to the nearest second:  $\cos t = 0.902$
- 53) Consider the following formula:
- $$N = M \left\{ \frac{(1 + r)^n - 1}{r(1 + r)^n} \right\}$$
- Find M if  $N = 145000$ ,  $n = 80$ ,  $r = 0.02$
- 54) Calculate  $12 \div 45\,005$  and write in scientific notation to 3 sig figs.
- 55) Convert 241 degrees, 85 minutes and 57 seconds to degrees to 3 decimal places.
- 56)  $(3.95 \times 10^{34} + 2.74 \times 10^{33}) \div (7.47 \times 10^{23}) =$  (2sf)
- 57) Calculate  $\cos 8$  degrees, 33 minutes, 15 seconds as a decimal to 3dp.

- 58) Find the equation of the straight line which passes through (0, 340) and (149, -323) (write values to 2dp)
- 59) Convert 22.05 degrees to degrees, minutes and seconds
- 60) DATA

From the data given find the following:

Sample Standard Deviation =

Median =

Inter Quartile range =

Score	Frequency
12	4
15	6
18	12
23	16
25	12
32	6
43	3
46	1

**NOW DRAW A BOX AND WHISKER PLOT OF THIS DATA**

- 61) Calculate the value of  $\cos 2.1$  radians (2sf)
- 62) What time is 15 hours 27 minutes before 9:15 pm Monday?
- 63) Calculate  $\sqrt[8]{24000}$  to 4dp
- 64) How many 6 person committees can be formed from a group of 22 people?
- 65) Calculate  $\sin 17$  degrees, 49 minutes, 45 seconds as a decimal to 3sf

## Graphics Calculator Skill Drill Sheet 4 Name: \_\_\_\_\_

66) Calculate the value of  $\tan 2.1$  grades (3sf)

67) Calculate  $6\sqrt{27367}$  to 3sf

68) DATA

Consider the following data:

45, 56, 23, 67, 45, 72, 45, 24, 47, 45, 25, 45,  
24, 34, 45, 61, 27, 36, 45, 52, 37, 39, 29, 32

From the above data calculate the following:

Standard deviation =

Mode =

Mean =

Inter-quartile range =

Highest Score =

**NOW DRAW A BOX AND WHISKER PLOT OF THIS DATA**

69) Calculate  $0.003 \div 3\ 000$  and write in scientific notation to 2 sig figs.

70) For the equation  $d = \frac{m(t-5)}{\sqrt{x+n}}$ , find t if  $d = 23$ ,  $m = 4$ ,  
 $x = 16$ ,  $n = -3$

71) a) Calculate  ${}^4\sqrt{257000}$  to 5sf  
b) Calculate  $4\sqrt{257000}$  to 5sf

72) Calculate  $\tan 48$  degrees, 23 minutes, 15 seconds as a decimal to 3dp.

73) Find the equation of the straight line which passes through (0, 19) and (14, 0) (write values to 2dp)

- 74) Calculate  $r$  to the nearest minute:  $\tan r = 1.512$
- 75) Calculate  $0.0006 \div 3480$  as a decimal to 8 decimal places (change your calculator display from Sci Not'n to Decimal)
- 76) You are the cook for tonight's meal and mum says you have to include 3 vegies. There are potatoes, carrots, spinach, peas, onions and pumpkin to choose from. How many ways can you choose the three vegetables?
- 77) Calculate the value of  $\sin 7$  radians (2 sf)
- 78) What time and day is 17 hours 47 minutes before 3:06 am Friday?
- 79) Calculate the value of  $\cos 67^\circ 39' 12''$  (3 sf)
- 80) In how many different arrangements can 5 people stand in a line?
- 81) Convert 5.17degrees to degrees, minutes and seconds
- 82) Find the equation of the straight line which passes through (12, -90) and (140, -32) (write values to 2dp)
- 83) Calculate  $3.79 \div 23794$  as a decimal (to 2sf)
- 84) Calculate  $c$  to the nearest minute:  $\cos c = 0.102$
- 85) Calculate  $2.93 \div 8.7 \times 10^7$ . Give answer both as a decimal and in scientific notation to 2 sig figs.
- 86) Find the equation of the straight line which passes through (22, -49) and (0, -32) (write values to 2dp)
- 87) What time and day is 7 hours 27 minutes before 12:06 am Monday?
- 88) Calculate  $t$  to the nearest second:  $\tan t = 0.702$