

eActivities

This edition of fxNews contains two new eActivities.

- **S~LINES**
- **RANDOM**

S~LINES contains a set of notes and tools to assist in determining the equation of a straight line from

- Gradient and a point
- Two points
- Parallel lines
- Perpendicular lines
- Angle with x-axis

Methods for determining

- distance between two points
- does a point lie on a line?
- midpoint

are also included.

RANDOM explores the random number generator of the fx-9860G (the Ran# command).

Users are introduced to the Ran# command and then how it can be combined with the Int (Integer part) command to generate random integers.

```
=====S~LINES =====
Straight Lines
Finding the equation
of a straight line.
Introduction NOTES
FILE STRP TEXT CHAR A↵3 D
```

```
To find the equation
of a straight line
you need either
▶ Two Points, or
▶ One point and the
gradient.
In this eActivity the
JUMP DEL INS MATR CHAR A↵3
```

```
Given m and (A,B)
Method 1 NOTES
Find c SOLVE
Method 2 NOTES
FILE STRP TEXT CHAR A↵3 D
```

```
Method 2 NOTES
Given (A,B) and (P,Q)
Method 3 NOTES
m from 2 pts SOLVE
FILE STRP TEXT CHAR A↵3 D
```

```
Misc gradient types
Parallel lines NOTES
Perpendicular NOTES
Angle to x-axis NOTES
FILE STRP TEXT CHAR A↵3 D
```

```
then  $m = \tan(\theta)$ .
Examples:
If  $\theta = 45^\circ$ ,  $m = \tan(45^\circ) = 1$ 
If  $m = -2$ ,  $\theta = \tan^{-1}(-2) = -63.435^\circ$ 
NB The -ve sign means
JUMP DEL INS MATR CHAR A↵3
```

```
How far apart are
(A,B) and (P,Q)?
Distance apart NOTES
Distance apart SOLVE
FILE STRP TEXT CHAR A↵3 D
```

```
use Pythagoras' Theo-
rem. If the distance
is D then
 $D = \sqrt{(A-P)^2 + (B-Q)^2}$ 
JUMP DEL INS MATR CHAR A↵3
```

```
Does the point (A,B)
lie on a given line?
How to check NOTES
Where is the midpoint
of (A,B) and (P,Q)?
FILE STRP TEXT CHAR A↵3 D
```

```
To check if a point
lies on a given line
substitute the coord-
inates of the point
for x and y in the
equation of the line.
If both sides of the
JUMP DEL INS MATR CHAR A↵3
```

```
=====RANDOM =====
There is often a need
to generate random
numbers in the world
today.
Examples NOTES
FILE STRP TEXT CHAR A↵3 D
```

```
numbers is vital to
electronic samplings.
Throughout history
randomness has been
used to select out
individuals for
duties such as a
JUMP DEL INS MATR CHAR A↵3
```

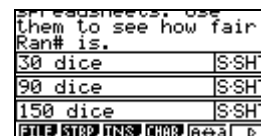
```
The Ran# command:
Highlight the Ran#
below and tap EXE.
Ran# 0.3444069722
Repeat several times.
FILE STRP CALC MATR INS D
```

```
Ran# is the Casio
command to generate
a random decimal
between 0 and 1.
Ran# can be found by
tapping OPTN and then
JUMP DEL INS MATR CHAR A↵3
```

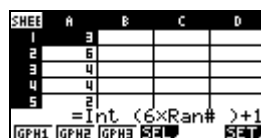
```
Highlight the line
below and tap EXE.
Int (4×Ran#)
Repeat several times.
What do you notice?
FILE STRP CALC MATR INS D
```

```
To simulate the score
on a six-sided dice
we could use the
following line.
Int (6×Ran#)+1
FILE STRP CALC MATR INS D
```

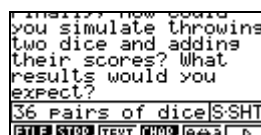
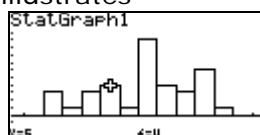
In-built notes are supplied on using the spreadsheets to re-throw (re-calculate) the simulation and how to draw a histogram to count frequencies.



Three single dice simulation spreadsheets are included in the eActivity for 30, 90 and 150 throws.



A final spreadsheet illustrates how a two-dice simulation could be constructed.



Dice A	Dice B	Sum
2	3	5
6	1	7
1	2	3
4	1	5

Users may like to exit the eActivity and build their own spreadsheets to explore larger numbers of throws. Memory issues are likely if the user tries to modify the spreadsheets in the eActivity for this purpose. (Each eActivity is limited to approximately 30kb).

Easy to customise.

Once in their own fx-9860, all eActivities can be modified by teachers or students to suit their own individual requirements. Examples can be deleted, notes can be edited or added to and so on.

Working with eActivities

After loading into your fx-9860 (see feature 'How to load fxNews from CD into your fx-9860'), choose eACT from the Main Menu. Highlight the FXN07V2 folder, tap EXE, highlight the eActivity you require and tap EXE again.

Scroll down through the eActivity. When you arrive at a 'strip' it will highlight itself. Tap EXE to jump into the application and work on it, just as you would if you had entered through the main menu. Note that each strip is an individual and unique copy of one of the applications available from the Main Menu.

To return to the eActivity (⏮), tap SHIFT then ⏮ (the arrow key below the tan key).

Once within a strip, to jump to another strip (⏮⏮) tap SHIFT then , (the comma key below the cos key).

To leave an eActivity tap EXIT. You will be asked whether you want to save changes to the eActivity. To leave the eActivity unchanged, tap F6 (No).