

## Functions

1. A computer repair person charges at the following rate: \$20 plus \$3 per minute

### On paper

- a. Make a table that shows the cost for 0, 1, 2, 3, 5, 10, 20, 60 minutes.
- b. Find the rule for the cost, given the minutes.
- c. Express the rule as a function.
- d. Plot the points and draw the graph in your grid book.

### Using your TI-Nspire graphics calculator.

- e. Put the table into a spreadsheet.
- f. In a graphs window, draw the scatterplot of the data.
- g. Change the window so you can see all of the points of the scatterplot.
- h. Graph the function. It should pass through the points.

**In Questions 2 and 3, we are first going to gather some real data.**

2. In your grid book, neatly draw at least 5 squares of different sizes.

### Using your TI-Nspire graphics calculator

- a. Create a Spreadsheet for the side length and diagonal length of the squares you have drawn. The column headings should be **side** and **diagonal**.
- b. Use a ruler to measure the side length and diagonal length of each square, in millimetres. Enter each measurement into your spreadsheet.
- c. On a Graphs page, draw the scatterplot of this data. Make a window that shows all of the points.
- d\*. Try to find the rule for the diagonal length, given the side length. Write it as a function.
- e\*. Graph the function. Does it pass through the points?

\* the asterisk means that the question is a challenging one.

3. To do this question, you will need some cans of different sizes, a piece of string and a ruler.

**On paper**

- a. Copy the table below into your maths pad.

Diameter (mm)							
Circumference (mm)							

- b. Measure the diameter and circumference of at least five cans of different sizes, as accurately as you can. Enter the data from each measurement into your table.
- c. Graph these points on a number plane. Do they form a straight line?
- d\*. Can you find a rule for circumference, given the diameter? Write it as a function.

**Using your TI-Nspire graphics calculator.**

- e. Put the data from the table into a spreadsheet.
- f. In a graphs window, draw the scatterplot of the data.
- g. Change the window so it nicely shows the scatterplot.
- h\*. Graph the function you found in part (d).
- i\*. How well did the function fit the data?

4 You will be given a beaker by your teacher.

**By hand**

a. Copy the table below into your maths pad.

Height of water (mm)	10	20	30	40	50	60	70
Volume (mL)							

- b. For each height, determine the corresponding volume. Enter the data into your table.
- c. Graph these points on a number plane. Join them with a straight line.
- d. What is the rule for finding the volume, if you know the height?

**Using a graphics calculator**

- e. Using your graphics calculator, plot the points on a scatterplot.
- f. Enter the rule into your graphics calculator.
- g. Draw the graph of the rule on your graphics calculator. Does it pass through the points?
- h. Make a table with your graphics calculator.