

## Phone worksheet 2

### Background

The questions and tasks below focus on how the model can be extended by using absolute cell references.

Load the file M2f Mobyphone 2 extended model.xls.

Tariff	Monthly	Free	Extra	Total amount of calls made in minutes
		minutes	minutes	
Talk 15	£30.00	15	£0.05	100
Talk 30	£32.50	30	£0.05	200
Talk 45	£35.00	45	£0.05	300
Talk 60	£37.50	60	£0.05	400
Talk Unlimited	£20.00	0	£0.00	0
Pay As You Go	£0.00	0	£0.00	0

- The model has been reorganised slightly so that you can investigate other ways of analysing the data. What formula do you need to create in F11? Try not to use 100 in the formula but make F10 an absolute cell reference.

You can click on the red dots in cells F11 and G11 to check you are on the right track.

- Enter similar formulae for G11, H11, I11, J11 and K11. Copy each formula down through the columns. Check that the absolute cell references have been copied correctly.
- Create a line graph that shows all of the tariffs at once for easy comparison. Here are some tips to help you.
  - Select B10 to B16 then F10 to K16 so that minute headings are included.
  - Select a suitable Chart Type for line graph – suggest first one. (Chart Wizard Step 1)
  - Select rows rather than columns in Chart Source Data for correct data. (Chart Wizard Step 2)
  - Remove the gridlines for easier viewing – Chart Options – Gridlines tab. (Chart Wizard Step 3)
  - Add a suitable title and label the axes – Chart Options – Titles tab. (Chart Wizard Step 3)

4 Print out the chart and use it to answer these questions.

a Which tariff offers the best value for money if you use 200 minutes' worth of calls per month?

b Which tariff offers the best value for money if you use 450 minutes' worth of calls per month?

c What is the best value if you can spend £30.00 per month?

d What is the best value if you can spend £25.00 per month?

5 There are certain points on the graph where it is difficult to see clearly. For example, look closely at the area around 200–300 minutes. Change the values in row 10 to 200, 220, 240, 260, 280, and 300 to graph this area more clearly. Now redraw the graph. You will need to rescale the y-axis. To do this:

- double-click anywhere on the y-axis of the graph;
- select the scale tab and change the minimum value from 0 to 20.

What does the graph tell you now?

What is the best value if you can afford £24.00 per month?

6 Use your model to explore other areas in detail, for example, if you use between 300 and 400 minutes each month.