

## Which mobile phone tariff?



In this activity you will look at how an Excel spreadsheet calculates mobile phone bills. You will also compare mobile phone tariffs to see which one is the best for someone to use.

### Information sheet

#### Occasional Caller Plus

This tariff has a monthly charge of £21.50, even if you do not use the phone. Each month you get 100 minutes of free calls and 500 free texts. You pay 35p per minute for any extra call time, and 12p each for any extra texts.

#### Frequent Caller Plus

This tariff has a monthly charge of £37.00. Each month you get 300 minutes of free calls and unlimited free texts. Again you pay 35p per minute for any extra call time.

Whichever tariff you choose, you also have to pay VAT on the total charge.



### Think about...

- How do you change pence to pounds?
- How do you work out VAT?
- Do you add or subtract VAT?

### To answer

Asma's mother phones Asma once each day. Each call lasts for about four minutes.

**1** Estimate how many minutes Asma's mother spends phoning Asma in September. (She does not do texts!)

#### Now use the spreadsheet.

There is a separate sheet for each tariff (labelled at the bottom). The blue cells are the only ones that you can change.

**2a** Enter the values for Asma's mother into the blue cells on the **Occasional Caller Plus** sheet. The yellow cell gives the total cost using this tariff.

**b** Copy the figures into the **Occasional Caller Plus** table.

**c** Explain how the spreadsheet has worked out the charged minutes at **A**.

**d** Beside the cells labelled **B, C, D, E**, write down the calculator keys you would use to work out the figures.

**3** Repeat question 2 for the **Frequent Caller Plus** tariff.

**4a** Which tariff is better for Asma's mother?

**b** Explain why in terms of the monthly charge and rate per minute.

**5** Invent other customers and investigate which tariff would suit them better. You may wish to include some texts.

### Extension

The **Pay & Go** sheet works out the total charge when all calls are charged at 25p per minute and all texts are charged at 12p each. There is no monthly charge.

At first this seems much cheaper than either of the contract offers.

BUT – with contracts the phone is supplied free while for Pay & Go you have to buy a phone.

Research the cost of phones. By making assumptions about how long someone might keep a phone, decide whether Pay & Go would be better for Asma's mother, or for your invented customer.

### At the end of the activity

- Look at the formula in each spreadsheet cell – try to explain how it works.
- Think about the cost of the texts for **Frequent Caller Plus**.  
What do you get if you multiply any amount by zero?

### Occasional Caller Plus account

Mobile phone account		
Tariff	Occasional Caller Plus	
Free calls		
per month (mins)	100	
Free texts per month	500	
Customer	Asma's Mother	
Telephone no:	7468604288	
Invoice month	September	
		Amount due
Monthly Charge (£)		21.50
	Minutes	Rate (p. per min.)
UK voice calls		
Charged minutes	A	35
Texts		
Charged texts	0	12
		Subtotal
		VAT
		Total

### Frequent Caller Plus account

Mobile phone account			
Tariff	Frequent Caller Plus		
Free calls			
per month (mins)	300		
Free texts per month	unlimited		
Customer	Asma's Mother		
Telephone no:	7468604288		
Invoice month	September		
			Amount due
Monthly Charge (£)		37.00	
	Minutes	Rate (p. per min.)	
UK voice calls			
Charged minutes		A 35	B
Texts			
Charged texts	0	12	
		Subtotal	C
		VAT	D
		Total	E