

1. The table gives information about the cost of the same basket of groceries in 2010, in 2011 and in 2012.

| Year | 2010 | 2011 | 2012 |
|-------------------------------|-------|-------|-------|
| Index number (base year 2009) | 102.1 | 103.5 | 105.8 |

In 2009, the cost of the basket of groceries was £25.99.

Incr of 5.8%

- (a) Work out the cost of the basket of groceries in 2012.

$$25.99 \times 1.058 = 27.50 \quad (2 \text{ dp})$$

£ 27.50

(Total for Question 1 is 2 marks)

2. The table gives information about the annual cost of gas for households in the UK in 2009, 2010, 2011 and 2012.

| Year | 2009 | 2010 | 2011 | 2012 |
|-----------------|------|------|------|------|
| Annual Cost (£) | 980 | 1120 | 1080 | 1260 |

- (a) Using 2009 as the base year, complete the table by calculating the index number for the year 2012.

Give your answer correct to one decimal place.

| Year | 2009 | 2010 | 2011 | 2012 |
|--------------|------|-------|-------|--------------|
| Index number | 100 | 114.3 | 110.2 | <u>128.6</u> |

$$\frac{1260}{980} \times 100 = 128.6$$

(Total for Question 2 is 2 marks)

3. The table gives information about the average selling price of a new car over a period of five months.

The table also gives some of the chain base index numbers, correct to 1 decimal place, for this information.

| | April | May | June | July | August |
|-------------------------|--------|--------|--------|--------|--------|
| Average price (£) | 28 624 | 28 777 | 28 860 | 28 973 | 29 132 |
| Chain base index number | | 100.5 | 100.3 | 100.4 | 100.5 |

- (a) Explain what the value 100.3 in the table represents.

..... An increase of 0.3% from the
..... previous month

(1)

- (b) Calculate, to 1 decimal place, the chain base index numbers for July and August, and write them in the table.

$$\text{July: } \frac{28973}{28860} \times 100 = 100.4$$

$$\text{August: } \frac{29132}{28973} \times 100 = 100.5$$

(2)

(Total for Question 3 is 3 marks)

4. The table gives information about the cost of stationery for a company each year from 2012 to 2014.

| Year | 2011 | 2012 | 2013 | 2014 |
|-------------------------|------|-------|-------|-------|
| Chain base index number | | 104.1 | 105.2 | 103.9 |

The cost of stationery in 2011 was £670.

(a) Work out the cost of stationery

(i) in 2012,

$$670 \times 1.041$$

£.....697.47.....

(ii) in 2013.

$$697.47 \times 1.052$$

£.....733.74.....

(3)

(Total for Question 4 is 3 marks)

5. The table gives information about the cost per ounce, in £, of gold in January 2012, in January 2013, in January 2014 and in January 2015.

| Year | 2012 | 2013 | 2014 | 2015 |
|-------------------------|------|-------|-------|-------|
| Cost per ounce (£) | 910 | 1020 | 1170 | 1540 |
| Chain base index number | | 112.1 | 114.7 | 131.6 |

- (a) Calculate the chain base index numbers for the years 2013, 2014 and 2015 and write them in the table.

Give each value correct to one decimal place.

$$\begin{array}{l}
 \text{2013: } \frac{1020}{910} \times 100 \\
 = 112.1
 \end{array}
 \qquad
 \begin{array}{l}
 \text{2014: } \frac{1170}{1020} \times 100 \\
 = 114.7
 \end{array}
 \qquad
 \begin{array}{l}
 \text{2015: } \frac{1540}{1170} \times 100 \\
 = 131.6 \quad (3)
 \end{array}$$

- (b) Calculate the geometric mean of the chain base for the years 2013, 2014 and 2015
Give your answer correct to one decimal place.

$$\sqrt[3]{112.1 \times 114.7 \times 131.6}$$

119.2

(2)

- (c) Give an interpretation of your answer to part (b).

An average increase of 19.2% each year.

(2)

(Total for Question 5 is 7 marks)

6 The value of jewellery changes every year.

The table shows the value, in pounds, of a ring for the years 2009 to 2012.

| Year | 2009 | 2010 | 2011 | 2012 |
|-------|------|------|------|------|
| Value | £105 | £120 | £125 | £140 |

(a) Calculate the chain base index number for 2010, 2011 and 2012.
Give each value correct to 3 significant figures.

$$\frac{120}{105} \times 100 \qquad \frac{125}{120} \times 100 \qquad \frac{140}{125} \times 100$$

$$\dots\dots\dots 114 \dots\dots\dots 104 \dots\dots\dots 112 \dots\dots\dots$$

(2)

(Total for Question 6 is 2 marks)

7. James insures his house in January each year.

The table gives the cost to insure his house in 2010 and in 2011.

| Year | 2010 | 2011 |
|----------|------|------|
| Cost (£) | 236 | 278 |

Using 2010 as the base year, work out the index number for the cost of the house insurance in 2011.

Give your answer correct to 1 decimal place.

$$\frac{278}{236} \times 100 = 117.8 \text{ 1dp}$$

$$\dots\dots\dots 117.8 \dots\dots\dots$$

(Total for Question 7 is 2 marks)

8. The following table shows the value of a house in Ockendon for the years 1990 and 1991.

| Year | 1990 | 1991 |
|-----------|---------|---------|
| Value (£) | £80 000 | £88 000 |

- (a) Taking 1990 as the base year, work out the value of the house in Ockendon in 1991 as an index number.

$$\frac{88000}{80000} \times 100$$

$$\dots\dots\dots 110 \dots\dots\dots$$

(2)

Using 1990 as the base year, the value of a house in Tilbury in 1991 as an index number is 108.5.

- (b) Interpret and compare the index numbers for Ockendon and Tilbury in 1991.

..... Prices in Ockendon increased by 10% this
..... is greater than the 8.5% incr. in Tilbury
..... (2)

(Total for Question 8 is 4 marks)

9. The following table shows the share price, in pence, of Mathcom in 2012 in 2013.

| Year | 2012 | 2013 |
|------------------------|------|------|
| Share Price (in pence) | 1196 | 1263 |

(a) Taking 2012 as the base year, work out the index number for the share price of Mathcom in 2013.

Give your answer correct to 1 decimal place.

$$\frac{1263}{1196} \times 100$$

$$\dots\dots\dots 105.6 \dots\dots\dots$$

(2)

Using 2012 as the base year, the index number for the share price of Statcom in 2013 is 109.3.

(b) Interpret and compare the index numbers for Mathcom and Statcom in 2013.

The increase in Statcom's price (9.3%) is greater than the increase in Mathcom's price (5.6%)

(2)

(Total for Question 9 is 4 marks)
