

## 2.3 Answers

### GCSE (Year 10) Mathematics Percentages II

#### 2.3.1 Solution to Example #2

$$\begin{aligned}1800 \times 1.03 \times 1.075 \times 1.02 \times 1.06 \times 1.05 &= 1800 \times 1.257 \\ &= £2262.62\end{aligned}$$

Some points to notice:

- The 1.257 shows that the interest paid overall is 25.7%
- The bank can't round to three significant figure and so only pay out £2260  
An answer given as £2260 is incorrect !
- Banks never round up when paying out.  
£2262.629943 gets rounded DOWN to £2262.62

#### 2.3.2 Solutions to Exercise 2.2

##### Answer 1

- ( i ) 1.75
- ( ii ) 1.024
- ( iii ) 1.12
- ( iv ) 2.34
- ( v ) 4.00

##### Answer 2

Decreasing by 32% is the same as keeping 68%

68% as a decimal is 0.68

So, keep 68 % of the current price

##### Answer 3

- ( i ) 0.75
- ( ii ) 0.96
- ( iii ) 0.01
- ( iv ) 0.925
- ( v ) A decrease of 100% reduces the mass to 0 kg.  
As it's not possible to have negative mass, it doesn't make sense to reduce the mass by more than 100%

##### Answer 4

- ( i ) The 2.97 is his birth weight  
The 0.93 is the 7% loss of weight over the first two weeks  
The 1.22 is the 22% gain in weight over the subsequent two weeks
- ( ii )  $2.97 \times 0.93 \times 1.22 = 2.97 \times 1.1346$   
 $= 3.37 \text{ kg}$

Note : Overall his weight increased by 13.46 %

**Answer 5**

**( i )**      $145 \times 1.12 \times 0.8$

**( ii )**     £129.92

**Answer 6**

**( i )**      $182\,300 \times 0.82 \times 0.35$

**( ii )**     52 320 tonnes

**Answer 7**

$$1437 \times 1.12 \times 1.17 \times 0.82 = 1544 \text{ orders}$$

**Answer 8**

$$1\,787\,096 \times 0.933 \times 0.927 \times 0.913 = 1\,411\,172$$

**Answer 9**

**( i )**      $60 \times 50 = 3000 \text{ m}^2$

**( ii )**      $60 \times 1.20 \times 50 \times 1.20 = 3000 \times 1.44 = 4320 \text{ m}^2$

**( iii )**     44 % (from the 1.44)

**Answer 10**

**( i )**      $1000 \times 1.036 \times 1.025 = \text{£}1061.90$

**( ii )**

| Year          | 2000 |     | 2001        |     | 2002 |     | 2003 |     | 2004        |     |
|---------------|------|-----|-------------|-----|------|-----|------|-----|-------------|-----|
| Inflation, %  |      | 3.0 |             | 1.8 |      | 1.7 |      | 2.9 |             | 3.0 |
| Investment, £ | 1000 |     | <b>1030</b> |     | 1049 |     | 1066 |     | <b>1097</b> |     |

| Year          | 2005 |     | 2006 |     | 2007 |     | 2008 |     | 2009        |       |
|---------------|------|-----|------|-----|------|-----|------|-----|-------------|-------|
| Inflation, %  |      | 2.8 |      | 3.2 |      | 4.3 |      | 4.0 |             | - 0.5 |
| Investment, £ | 1130 |     | 1162 |     | 1199 |     | 1251 |     | <b>1301</b> |       |

| Year          | 2010        |     | 2011 |     | 2012 |     | 2013 |     | 2014 |     |
|---------------|-------------|-----|------|-----|------|-----|------|-----|------|-----|
| Inflation, %  |             | 4.6 |      | 5.2 |      | 3.2 |      | 3.0 |      | 2.4 |
| Investment, £ | <b>1294</b> |     | 1354 |     | 1424 |     | 1470 |     | 1514 |     |

| Year          | 2015 |     | 2016 |     | 2017        |     | 2018        |     | 2019        |  |
|---------------|------|-----|------|-----|-------------|-----|-------------|-----|-------------|--|
| Inflation, %  |      | 1.0 |      | 1.8 |             | 3.6 |             | 2.5 |             |  |
| Investment, £ | 1550 |     | 1566 |     | <b>1594</b> |     | <b>1651</b> |     | <b>1692</b> |  |

( iii )

$$x \times 1000 = 1692$$

$$x = \frac{1692}{1000}$$

$$x = 1.692$$

( iv ) 69.2%

### Answer 11

( i )  $x \times x \times x = x^3$

( ii )  $x \times 1.15 \times x \times 1.15 \times x \times 1.15 = x^3 \times 1.15^3 = x^3 \times 1.52$

( iii ) 52 % (from the 1.52)