Instructions

This is a warm-up test comprising just 12 questions. You will have 15 minutes to answer them.

Calculators are permitted for this test, and it is recommended you have some rough paper to work on.

You will have to work quickly and accurately to perform well in this test. If you don’t know the answer to a question, leave it and come back to it if you have time.

Each question will have four possible answers, one of which is correct. You may click Back and Next during the test to review or skip questions.

Try to find a time and place where you will not be interrupted during the test. When you are ready, turn to the next page and begin.
Q1  How many Bernd cars were sold in May?

(A) 10
(B) 1,000
(C) 5,000
(D) 10,000

The trick to this question is to recognise that the graph gives sales figures cumulatively.

Step 1 - We see from the graph that the cumulative Bernd sales at the end of April are 9,000. We see that the cumulative Bernd sales at the end of May are 10,000.

Step 2 - Therefore during May (10,000 – 9,000 =) 1,000 Bernd cars must have been sold.

Thus the correct answer is (B) 1,000
Q2  What were the total sales of Tymko cars for May, June and July combined?

(A) 21,000  
(B) 16,000  
(C) 22,000  
(D) 6,000

Don’t waste time working out the sales for each month. Since the data is cumulative, we can say combined sales for May, June and July = (cumulative sales for end of July) – (cumulative sales end of April).

Step 1 - (Cumulative sales July) – (Cumulative sales April) = (21,000) – (15,000) = 6,000

Thus the correct answer is (D) 6,000
Q3 If the number of Bernd cars sold in July had been equal to the number of Bernd cars sold in June, how many more Bernd cars would have been sold during July?

(A) 1,000  
(B) 1  
(C) 12,000  
(D) 2,000

**Step 1** - First, find out the number of Bernd cars sold in June. From the cumulative graph we see this is 1,000.

**Step 2** - Now, compare this with how many Bernd cars were actually sold in July. We see from the graph there were no sales 1,000 – 0 = 1,000

Thus the correct answer is (A) 1,000
Q4  In Liverpool what was the net effect of live birth and death rates on the population during 2000?

(A) 200 decrease  
(B) 600 increase  
(C) 500 increase  
(D) 300 increase

**Step 1** - *In Liverpool the population was 500,000 at the start of the year. We are told there were 13.4 births per thousand of the population. So this means there were (500 x 13.4 =) 6,700.*

**Step 2** - *We are told there were 12.4 deaths per thousand of the population, i.e. 500 x 12.4 = 6,200.*

**Step 3** - *The net effect on population is 6,700 – 6,200 = 500.*

Thus the correct answer is (C) 500 increase.
<table>
<thead>
<tr>
<th>City Population Composition (Year 2000)</th>
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<tr>
<td></td>
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<tr>
<td>Population at start of year (thousands)</td>
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<tr>
<td>--------------------------------------</td>
</tr>
<tr>
<td>London</td>
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<tr>
<td>Birmingham</td>
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<td>Glasgow</td>
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<td>Liverpool</td>
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<td>Leeds</td>
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</tbody>
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Q5 How many live births occurred in 2000 in Birmingham and Glasgow combined?

(A) 21,812
(B) 18,210
(C) 16,700
(D) 32,100

Step 1 - In Birmingham there were 995 x 13.6 = 13,532 births. In Glasgow there were 600 x 13.8 = 8,280 live births. In total that is 13,532 + 8,280 = 21,812

Thus the correct answer is (A) 21,812
Q6 Of the cities shown, which had the lowest number of people under the age of 15 at the start of the year 2000?

(A) Birmingham
(B) Glasgow
(C) Liverpool
(D) Leeds

Tip - The question says “of the cities shown”. Without this technically we would have to respond “cannot say” because we are not told any information about any other cities and therefore we would not be able to say with any certainty which had the lowest number. As it happens in this question “cannot say” is not an option so we would have been OK, but it’s a catch worth looking out for.

Step 1 - Work through each city shown calculating the number of under 15 year olds. Don’t worry about entering the thousands in your calculator – this just wastes time.

London: don’t bother calculating as it is not a possible answer.
Birmingham: 995 x 0.18 = 179.1
Glasgow: 600 x 0.21 = 126
Liverpool: 500 x 0.22 = 110
Leeds: 450 x 0.23 = 103.5

Thus the correct answer is (D) Leeds
Q7 Which of the countries shown experienced the largest percentage increase in public transport spending from 2007 to 2008?

- (A) UK
- (B) US
- (C) Germany
- (D) Cannot tell

**Step 1 -** Calculate the percentage increase from 2007 to 2008 for each country. Don’t bother with the billions, the percentage calculation won’t be affected.

- **UK:** \(\frac{38}{35} = 8.57\%\) increase
- **US:** \(\frac{136}{128} = 6.25\%\) increase
- **Germany:** \(\frac{46}{44} = 4.55\%\) increase
- **Italy:** \(\frac{28}{26} = 7.69\%\) increase

Thus the correct answer is **(A) UK**

**Tip:** we will be using this short-hand method of calculating percentages as it saves time. If you prefer you can do it the long way. So for example the UK percentage would be as follows.

- **Step 1:** \((38-35) ÷ 35 = 0.085714\)
- **Step 2:** \(0.085714 \times 100 = 8.5714\)
- **Step 3:** 8.57\% increase
### Q8
Which of the countries shown had the highest public transport spend per capita in 2008?

(A) UK  
(B) US  
(C) Germany  
(D) Cannot say

**Step 1** - Simply divide the public transport spend by the population for each country. Again, use units which simplify the calculation because we are only interested in the relative order of magnitude.

- **UK**: $38 \div 60.1 = 0.632$
- **US**: $136 \div 302.5 = 0.450$
- **Germany**: $46 \div 84.3 = 0.546$
- **Italy**: don’t bother as this is not an option.

Thus the correct answer is (A) UK

### Q9
In 2007 Italy had a target to spend 8% more on public transport than they did in 2006. By how much were they short of this target?

(A) £1 million  
(B) £1 billion  
(C) £0.1 billion  
(D) Cannot tell

**Step 1** - In 2006 Italy spent £25 billion An increase of 8% is: £25 billion x 1.08 = £27 billion.

**Step 2** - We see from the table that Italy actually spent £26 billion. That’s £1 billion short of the target.

Thus the correct answer is (B) £1 billion
### Q10
Visitors arriving from which website were most likely to make a purchase at newbags.com?

(A) Website W  
(B) Website X  
(C) Website Y  
(D) Website Z

**Step 1** - For each arrival website, calculate the percentage of visitors who made a purchase out of the number of visitors.

- **Website W**: \( \frac{2,876}{315,380} = 0.912\% \)
- **Website X**: \( \frac{284}{26,850} = 1.06\% \)
- **Website Y**: \( \frac{183}{82,520} = 0.222\% \)
- **Website Z**: \( \frac{204}{12,630} = 1.62\% \)

Thus the correct answer is (D) Website Z

### Q11
If the average profit made per sale at newbags.com was £12, approximately how much more profit was made from visitors from Website X than visitors from Website Y?

(A) £1,212  
(B) £1,852  
(C) £867  
(D) £891

**Step 1** - Calculate how many more sales came from Website X than from Website Y.

\[ 284 - 183 = 101 \]

**Step 2** - Calculate the profit difference. \( 101 \times £12 = £1,212 \)

Thus the correct answer is (A) £1,212
Q12 Assuming all visitors arrived via either website W, X, Y or Z, approximately what percentage of visitors arrived at newbags.com from Website Y?

(A) 15.7%  
(B) 18.9%  
(C) 25.0%  
(D) 30.3%

**Step 1** - Add up the total number of visitors. 315,380 + 26,850 + 82,520 + 12,630 = 437,380.

**Step 2** - Calculate the percentage of them who came from Website Y. 82,520 ÷ 437,380 = 18.87%

Thus the correct answer is (B) 18.9%

-- End of Test --