Topic 6
Fractions, Decimals and Percentages
1. A school has 1200 pupils.
   575 of these pupils are girls.

   \[ \frac{2}{5} \text{ of the girls like sport.} \]

   \[ \frac{3}{5} \text{ of the boys like sport.} \]

   Work out the total number of pupils in the school who like sport.
3. Danny shares a bag of 20 sweets with his friends.

   He gives Mary $\frac{3}{5}$ of the sweets.

   He gives Ann $\frac{1}{10}$ of the sweets.

   He keeps the rest for himself.

   How many sweets does Danny keep for himself?

4. A class has 29 students.

   16 of the students are girls.

   What fraction of the students are boys?
5. A box contains 200 tissues.

Toby takes \(\frac{3}{5}\) of these tissues.

Work out how many tissues he takes.

\[ \text{(Total 2 marks)} \]

6. Young Person’s RAILCARD

\[ \frac{1}{3} \text{ off normal price} \]

Lisa uses her railcard to buy a ticket.

She gets \(\frac{1}{3}\) off the normal price of the ticket.

The normal price of the ticket is £24.90

Work out how much Lisa pays for the ticket.

\[ £ \text{..................................} \]

\[ (Total 3 marks) \]
1. (a) Write $\frac{1}{4}$ as a percentage.

..........................%  

(1)

(b) Write 0.23 as a percentage.

..........................%  

(1)

(c) Write 42% as a fraction.
Give your answer in its simplest form.

..........................  

(2)

(Total 4 marks)

2. (a) Write 0.15 as a percentage.

..........................%  

(1)

(b) Write 35% as a fraction.
Give your answer in its simplest form.

..........................  

(2)

(Total 3 marks)

3. (a) Work out 50% of £60

£ ..........................  

(1)

(b) Work out 25% of 20 metres.

.......................... metres  

(1)

(Total 2 marks)
4. (a) Write \( \frac{9}{10} \) as a decimal.

.................................  

(1)

(b) Write \( \frac{3}{4} \) as a percentage.

................................. %  

(1)

(c) Write 23% as a fraction.

.................................  

(1)

(d) Work out \( \frac{1}{5} \) of 50

.................................  

(1)  

(Total 4 marks)

5. (a) Write \( \frac{1}{5} \) as a percentage.

................................. %  

(1)

(b) Write 0.7 as a percentage.

................................. %  

(1)  

(Total 2 marks)
12. (a) Write 0.38 as a percentage.

\[ \text{.................} \% \]  

(1)

(b) Write \( \frac{3}{10} \) as a percentage.

\[ \text{.................} \% \]  

(1)

(Total 2 marks)

13. (a) Shade \( \frac{3}{4} \) of this shape.

\[ \text{(1)} \]

(b) Shade 0.25 of this shape.

\[ \text{(1)} \]

(c) Change 0.3 into a fraction.

\[ \text{.........................} \]  

(1)

(d) Change 0.7 into a percentage.

\[ \text{.........................} \% \]  

(1)

(e) Work out \( \frac{3}{4} \) of £36

\[ \text{£ .........................} \]  

(2)

(Total 6 marks)
A newspaper reporter did a survey. He asked people what was their favourite leisure activity.

The table gives some information about the answers he got.

<table>
<thead>
<tr>
<th>Favourite leisure activity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Improvements</td>
<td>22%</td>
</tr>
<tr>
<td>Shopping</td>
<td>14%</td>
</tr>
<tr>
<td>Gardening</td>
<td>9%</td>
</tr>
<tr>
<td>All others</td>
<td></td>
</tr>
</tbody>
</table>

(a) Complete the table. (1)

(b) Write 9% as a decimal. (1)

400 people were asked in the survey.

(c) How many people said their favourite leisure activity was gardening? (2)

(Total 4 marks)
4. (a) What fraction of this shape is shaded?

.......................... (1)

(b) Shade $\frac{5}{8}$ of this shape.

(1)

(c) What fraction of this shape is shaded?

.......................... (1)

(Total 3 marks)
6. What fraction of the large triangle is shaded?
   Give your fraction in its simplest form.

7. Here are two fractions \( \frac{4}{5} \) and \( \frac{3}{4} \)
   Explain which is the larger fraction.
   You may use the grids to help with your explanation.

   (Total 3 marks)
1. \[ \frac{5}{8}, \frac{1}{2}, \frac{3}{4} \]

Write these fractions in order of size.  
Start with the smallest fraction.

.........................................................................................................................

(Total 2 marks)

2. Write these numbers in order of size.  
Start with the smallest number.

(i) 75, 56, 37, 9, 59

.........................................................................................................................

(ii) 0.56, 0.067, 0.6, 0.65, 0.605

.........................................................................................................................

(iii) $5, -6, -10, 2, -4$

.........................................................................................................................

(iv) $\frac{1}{2}, \frac{2}{3}, \frac{2}{5}, \frac{3}{4}$

.........................................................................................................................

(Total 5 marks)
5. Write these numbers in order of size. Start with the smallest number.

\[
0.82 \quad \frac{4}{5} \quad 85\% \quad \frac{2}{3} \quad \frac{7}{8}
\]

(2)
(Total 2 marks)

6. Write these numbers in order of size. Start with the smallest number.

(a) 76, 103, 13, 130, 67

(1)

(b) \(-3, \ 5, \ 0, \ -7, \ -1\)

(1)

(c) 70\%, \ \frac{3}{4}, \ 0.6, \ \frac{2}{3}

(2)
(Total 4 marks)
1. Work out \( \frac{2}{5} + \frac{1}{7} \)

2. Work out \( \frac{2}{3} + \frac{1}{5} \)

3. Work out \( \frac{11}{12} - \frac{5}{6} \)
8. (a) Work out $\frac{2}{5} + \frac{3}{8}$

\[ \frac{2}{5} + \frac{3}{8} \]

\[ \text{..................} \quad (2) \]

(b) Work out $5\frac{2}{3} - 2\frac{3}{4}$

\[ 5\frac{2}{3} - 2\frac{3}{4} \]

\[ \text{..................} \quad (3) \]

(Total 5 marks)

9. (a) Work out $\frac{1}{3} + \frac{3}{5}$

\[ \frac{1}{3} + \frac{3}{5} \]

\[ \text{..........................} \quad (2) \]

(b) Work out $2\frac{1}{4} + \frac{3}{5}$

\[ 2\frac{1}{4} + \frac{3}{5} \]

\[ \text{..........................} \quad (3) \]

(Total 5 marks)
1. Wayne bought an engagement ring for Tracy. The total cost of the ring was £420 plus VAT at 17%.

(a) Work out the cost of the ring.

£ ......................... 

(2)

Wayne invited 96 people to an engagement party. Only 60 of the people invited came to the party.

(b) Express 60 as a percentage of 96.

................................. %  

(2)

(Total 4 marks)

2. A doctor has 12 000 patients. 4560 of these patients are male. What percentage of these patients are female?

................................. %  

(3)

(Total 3 marks)
3. Martin had to buy some cleaning materials.
   The cost of the cleaning materials was £64.00 plus VAT at \(17\frac{1}{2}\%\).
   Work out the total cost of the cleaning materials.

   £ ............................

   (Total 2 marks)

4. There are 800 students at Prestfield School.
   45% of these 800 students are girls.
   (a) Work out 45% of 800

   .........................

   (2)

   There are 176 students in Year 10.
   (b) Write 176 out of 800 as a percentage.

   .........................\%

   (2)

   (Total 4 marks)
7. The cost of a compact disc holder is 25p. John has £15 to spend.
   (a) What is the greatest number of compact disc holders that John can buy for £15?

          ..........................................................

     (3)

   A compact disc player costs £50 plus 17\(\frac{1}{2}\)% VAT.
   (b) Calculate the total cost of the compact disc player.

          £ ..............................

     (3)

   (Total 6 marks)

8. Work out 28% of £85 000

          £ ..............................

     (Total 2 marks)

9. Work out 45% of 800

          ..............................

     (Total 2 marks)
10. Bytes is a shop that sells computers and digital cameras.
   In 2003, Bytes sold 620 computers.
   In 2004, Bytes sold 708 computers.
   Work out the percentage increase in the number of computers sold.
   Give your answer to an appropriate degree of accuracy.

   .................................. %
   (4)

11. Calculate 36% of £4500

   £ .....................
   (Total 2 marks)

12. In April 2004, the population of the European Community was 376 million.
    In April 2005, the population of the European Community was 451 million.
    Work out the percentage increase in population.
    Give your answer correct to 1 decimal place.

   ..................................%
   (Total 3 marks)
1. Toby invested £4500 for 2 years in a savings account. He was paid 4% per annum compound interest. How much did Toby have in his savings account after 2 years?

£ ..................................
(Total 3 marks)

2. The value of a car depreciates by 35% each year. At the end of 2007 the value of the car was £5460. Work out the value of the car at the end of 2006

£ ..................................
(Total 3 marks)
8. Gwen bought a new car.
Each year, the value of her car depreciated by 9%.

Calculate the number of years after which the value of her car was 47% of its value when new.

......................................

(Total 3 marks)

9. Liam invests £6200 for 3 years in a savings account.
He gets 2.5% per annum compound interest.

How much money will Liam have in his savings account at the end of 3 years?

£ ..............................................................

(Total 3 marks)
*11* Viv wants to invest £2000 for 2 years in the same bank.

<table>
<thead>
<tr>
<th>The International Bank</th>
<th>The Friendly Bank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compound Interest</td>
<td></td>
</tr>
<tr>
<td>4% for the first year</td>
<td>5% for the first year</td>
</tr>
<tr>
<td>1% for each extra year</td>
<td>0.5% for each extra year</td>
</tr>
</tbody>
</table>

At the end of 2 years, Viv wants to have as much money as possible.

Which bank should she invest her £2000 in?

(Total 4 marks)
1. In a sale, normal prices are reduced by 20%.

Andrew bought a saddle for his horse in the sale.
The sale price of the saddle was £220.
Calculate the normal price of the saddle.

£……………………
(Total 3 marks)
Jacob answered 80% of the questions in a test correctly. He answered 32 of the questions correctly.

Work out the total number of questions in the test.
3. In a sale, normal prices are reduced by 15%. The sale price of a CD player is £102
   Work out the normal price of the CD player.

   £....................................
   (Total 3 marks)

4. A garage sells cars. It offers a discount of 20% off the normal price for cash.
   Dave pays £5200 cash for a car.
   Calculate the normal price of the car.

   £ ..........................
   (Total 3 marks)
5. In a sale, normal prices are reduced by 25%. The sale price of a saw is £12.75

Calculate the normal price of the saw.

£ ....................................

(Total 3 marks)

6. In a sale, normal prices are reduced by 12%. The sale price of a DVD player is £242.

Work out the normal price of the DVD player.

£ ....................................

(Total 3 marks)