Numeracy Tips for Nursing Applicants

As a nurse, you will need some basic numeracy skills in order to carry out drug and clinical calculations.

The Nursing and Midwifery Council requires Higher Education Institutions to ensure that their selection and admission criteria to pre-registration courses provide evidence of those skills.

Most universities set their own numeracy tests as part of the application process. The tests differ in style, length and number of questions, so you should try to obtain a practice test from the university of your choice to familiarise yourself with their requirements.

Generally, the tests cover the ability to use numbers accurately in respect of volume, weight and length, and they include:

- Addition
- Subtraction
- Division
- Multiplication
- Use of decimals, fractions and percentages

This booklet provides you with some worked examples, to remind you how to do the basic calculations you will need, and some sample tests to practise yourself.

Some numeracy tests consist of a part where a calculator may not be used and a part where use of a calculator is allowed. The tests in this booklet are intended to provide practice in the skills you will need to demonstrate without the use of a calculator.

All of the worked examples are based on our excellent book – Numeracy and Clinical Calculations for Nurses by Neil Davison. It will provide you with all the numeracy skills you need for your whole nursing career: from when you apply to a course, through your studies, to life on the ward.

Numeracy and Clinical Calculations for Nurses
Neil Davison

Reviewers’ comments:
Absolutely fab book. I struggle often in this area and it has helped me on loads!!
Great - I really needed this! Great to either work through or just go to particular points that I needed to work on. Would recommend to any student nurse/midwife.
Got on very well with this book, definitely one to get!
An excellent book for all nurses and allied health professionals to help develop or improve their numeracy skills which are so invaluable in healthcare.
This is a great book. It starts with all the basics and talks you through everything in an easy to understand way. Great if you've been out of formal education for a while or are just a bit rusty!

Now on to the worked examples that will show you how to perform these basic skills.....
Addition

Most simple additions can be performed mentally, but where large numbers are concerned or many individual numbers have to be added together then it’s sensible to perform the calculation on paper.

This worked example comes from pages 14-15 of Numeracy and Clinical Calculations for Nurses

Fluid balance charts are used to monitor the fluid intake and output of patients. You will need to add up fairly large numbers, particularly when monitoring urine output. If a patient passed 425 millilitres of urine after breakfast and has passed 485 millilitres just before lunch, how much urine have they passed during the morning?

\[
\begin{array}{c}
\text{H T O} \\
4 & 2 & 5 \\
\hline
4 & 8 & 5 + \\
\hline
9 & 1 & 0
\end{array}
\]

Method
Perform the addition calculation vertically from right to left, starting under the ‘ones’ column.

Process
Starting with the ‘ones’ column:

\[
\begin{array}{c}
5 + 5 = 10 \\
\hline
4 & 2 & 5 \\
\hline
4 & 8 & 5 + \\
\hline
0
\end{array}
\]

- The number ‘10’ is made up of one ‘ten’ and no ‘ones’. Because this column is only used to record the ‘ones’, a zero is recorded here and the ‘ten’ is carried over to the ‘tens’ column. The usual way of doing this is to write a small ‘1’ by the 8 under the ‘tens’ column.

Moving left to the ‘tens’ column:

\[
\begin{array}{c}
2 + 8 + 1 (\text{carried over from the} \\
\text{‘ones’ column}) = 11 \\
\hline
4 & 2 & 5 \\
\hline
4 & 8 & 5 + \\
\hline
1 & 0
\end{array}
\]

- This part of the calculation is being performed under the tens column, therefore the number ‘11’ is made up of one ‘hundred’ and one ‘ten’ (eleven lots of ten). Because this column is only used to record ‘tens’, a one is recorded here and the hundred is carried over to the ‘hundreds’ column, identified as a small ‘1’ by the 4 under the ‘hundreds’ column.
Moving left to the ‘hundreds’ column:

\[
\begin{array}{c}
4 + 4 + 1 \text{ (carried over from the} \\
\text{‘tens’ column) } = 9
\end{array}
\]

\[
\begin{array}{ccc}
H & T & O \\
4 & 2 & 5 \\
4, 8, 5 & + \\
9 & 1 & 0
\end{array}
\]

This gives the answer of 9 hundreds, 1 ten and no ones or 910. So the total amount of urine passed during the morning is 910 millilitres.

**Checking**

To check your answer 910 − 485 = 425.
Subtraction

Subtractions involve taking one number away from another, and the same basic rules apply as for addition. It’s important that the digit positions are maintained, and the use of columns in a calculation on paper will help.

Remember to check that you haven’t made a basic error with your calculation – subtraction means that the answer must be less than the number you started with.

This worked example comes from pages 19-20 of Numeracy and Clinical Calculations for Nurses

When monitoring a patient’s state of hydration, fluid balance charts are invaluable. These involve calculating the amount of various types of fluid input and output as well as the total input and output from the body.

The overall fluid balance is calculated by subtracting the output from the input. If a patient’s total input over 24 hours was 2455 millilitres and their output was 2260 millilitres, you can calculate their fluid balance as follows.

\[
\begin{array}{c}
\text{Th} & \text{H} & \text{T} & \text{O} \\
2 & 4 & 5 & 5 \\
2 & 2 & 6 & 0 \\
\hline
\end{array}
\quad
\begin{array}{c}
\text{Th} & \text{H} & \text{T} & \text{O} \\
2 & 4 & 5 & 5 \\
2 & 2 & 6 & 0 \\
\hline
\text{1} & \text{9} & \text{5} \\
\end{array}
\]

Method
As before, the subtraction is calculated vertically from right to left, starting under the ‘ones’ column. Note that an additional column for ‘thousands’ has been included because the numbers are in the thousands.

Process
Starting with the ‘ones’ column:

\[
\begin{array}{c}
\text{Th} & \text{H} & \text{T} & \text{O} \\
5 & \text{--} & \text{--} & \text{--} \\
2 & 4 & 5 & 5 \\
2 & 2 & 6 & 0 \\
\hline
\text{5} \\
\end{array}
\]

Moving left to the ‘tens’ column:

\[
\begin{array}{c}
\text{Th} & \text{H} & \text{T} & \text{O} \\
5 & \text{--} & \text{--} & \text{--} \\
2 & 4 & 5 & 5 \\
2 & 2 & 6 & 0 \\
\hline
\text{5} \\
\end{array}
\]

\bullet You cannot take 6 from 5, because it is a lower number. The way around this is to borrow 1 ‘hundred’ from the 4 ‘hundreds’ under the ‘hundreds’ column. When this is transferred to the ‘tens’ column, this is added to the 5 to give 15. This is recorded by writing a small ‘1’ by the 5 under the ‘tens’ column. The 4 under the ‘hundreds’ column needs to be reduced to 3 to account for 1 hundred being borrowed by the ‘tens’ column. This involves crossing out the 4 and replacing it with a 3.
The subtraction now becomes:

\[
15 - 6 = 9
\]

\[
\begin{array}{c}
\text{Th} \\
2
\end{array}
\begin{array}{c}
\text{H} \\
4
\end{array}
\begin{array}{c}
\text{T} \\
1
\end{array}
\begin{array}{c}
\text{O} \\
5
\end{array}
\]

\[
\begin{array}{c}
\text{Th} \\
2
\end{array}
\begin{array}{c}
\text{H} \\
2
\end{array}
\begin{array}{c}
\text{T} \\
6
\end{array}
\begin{array}{c}
\text{O} \\
0
\end{array}
\]

\[
\begin{array}{c}
- \\
\hline
\end{array}
\begin{array}{c}
\text{Th} \\
2
\end{array}
\begin{array}{c}
\text{H} \\
2
\end{array}
\begin{array}{c}
\text{T} \\
6
\end{array}
\begin{array}{c}
\text{O} \\
0
\end{array}
\]

\[
\begin{array}{c}
\text{Th} \\
1
\end{array}
\begin{array}{c}
\text{H} \\
9
\end{array}
\begin{array}{c}
\text{T} \\
5
\end{array}
\begin{array}{c}
\text{O} \\
5
\end{array}
\]

Moving left to the ‘hundreds’ column:

\[
3 - 2 = 1
\]

\[
\begin{array}{c}
\text{Th} \\
2
\end{array}
\begin{array}{c}
\text{H} \\
4
\end{array}
\begin{array}{c}
\text{T} \\
1
\end{array}
\begin{array}{c}
\text{O} \\
5
\end{array}
\]

\[
\begin{array}{c}
\text{Th} \\
2
\end{array}
\begin{array}{c}
\text{H} \\
2
\end{array}
\begin{array}{c}
\text{T} \\
6
\end{array}
\begin{array}{c}
\text{O} \\
0
\end{array}
\]

\[
\begin{array}{c}
- \\
\hline
\end{array}
\begin{array}{c}
\text{Th} \\
2
\end{array}
\begin{array}{c}
\text{H} \\
2
\end{array}
\begin{array}{c}
\text{T} \\
6
\end{array}
\begin{array}{c}
\text{O} \\
0
\end{array}
\]

\[
\begin{array}{c}
\text{Th} \\
1
\end{array}
\begin{array}{c}
\text{H} \\
9
\end{array}
\begin{array}{c}
\text{T} \\
5
\end{array}
\begin{array}{c}
\text{O} \\
5
\end{array}
\]

Moving left to the ‘thousands’ column:

\[
2 - 2 = 0
\]

\[
\begin{array}{c}
\text{Th} \\
2
\end{array}
\begin{array}{c}
\text{H} \\
4
\end{array}
\begin{array}{c}
\text{T} \\
1
\end{array}
\begin{array}{c}
\text{O} \\
5
\end{array}
\]

\[
\begin{array}{c}
\text{Th} \\
2
\end{array}
\begin{array}{c}
\text{H} \\
2
\end{array}
\begin{array}{c}
\text{T} \\
6
\end{array}
\begin{array}{c}
\text{O} \\
0
\end{array}
\]

\[
\begin{array}{c}
- \\
\hline
\end{array}
\begin{array}{c}
\text{Th} \\
2
\end{array}
\begin{array}{c}
\text{H} \\
2
\end{array}
\begin{array}{c}
\text{T} \\
6
\end{array}
\begin{array}{c}
\text{O} \\
0
\end{array}
\]

\[
\begin{array}{c}
\text{Th} \\
1
\end{array}
\begin{array}{c}
\text{H} \\
9
\end{array}
\begin{array}{c}
\text{T} \\
5
\end{array}
\begin{array}{c}
\text{O} \\
5
\end{array}
\]

This gives the answer of 0 thousands, 1 hundred, 9 tens and 5 ones, or 195. Therefore the patient’s input was 195 millilitres more than their output.

**Checking**

To check your answer: 195 + 2260 = 2455.
**Multiplication**

Multiplication is the same as repeatedly adding the same number together but the process is quicker. If you don’t remember your ‘times tables’ it’s worth practising them until you are confident you can do simple multiplications in your head.

*This worked example comes from pages 24-25 of Numeracy and Clinical Calculations for Nurses*

![Multiplication Example](image)

A fluid balance chart shows that a patient’s oral intake in one 24-hour period was 11 glasses of water. Each glass measures 85 ml. What is the total oral intake? This calculation involves multiplying 85 and 11.

**Method**

As before, the multiplication is calculated vertically from right to left, making sure that individual digits are kept in position within the columns. The terms ‘ones’, ‘tens’ or ‘hundreds’ column used within the explanation only refer to the top number in the calculation.

**Process**

The multiplication has two stages, firstly multiplying the top number by the 1 ‘one’ belonging to the 11 and secondly multiplying the top number by the 1 ‘ten’ belonging to the 11.

**Stage one**

Starting with the ‘ones’ column:

\[
1 \times 5 = 5
\]

**Moving left to the ‘tens’ column:**

\[
1 \times 8 = 8
\]
Multiplying decimals

When you multiply decimals you can treat them as you would any multiplication and then use the technique described at the end of this example to get the decimal point in the right place.

This worked example comes from pages 27-30 of Numeracy and Clinical Calculations for Nurses

Imagine that you had to calculate the annual leave entitlement for a member of staff. Nurse Williams is a Practice nurse and is entitled to 2.33 days annual leave for each month that she works. She has worked at the surgery for 4.5 months. How much time off is she owed?

To calculate the amount of annual leave that she can take means multiplying 2.33 (days) by 4.5 (months):

\[
\begin{array}{c}
2.33 \\
4.5 \\
\end{array} \times \begin{array}{c}
2.33 \\
4.5 \\
\end{array} = \begin{array}{c}
11.65 \\
9.320 \\
10.485 \\
\end{array}
\]

Method

As before, the multiplication is calculated vertically from right to left, starting under the ‘hundredths’ column (h) and involves three individual calculations, one for the ‘hundredths’ column (h), one for the ‘tenths’ (t) column and a final calculation for the ‘ones’ column. The results of these three individual calculations are then added together.

Process

Starting with the bottom number at the ‘tenths’ column:
The digit 5 from the number 4.5 is used to multiply the digit 3 in the ‘hundredths’ column from the 2.33. It is then used to multiply the digit 3 in the ‘tenths’ column and then the digit 2 from the number 2.33.

\[5 \times 3 = 15\]

- Similar to the earlier multiplication examples, the 5 from the 15 is recorded below the line beneath the hundredths column and the 1 from the 15 is carried over to the ‘tenths’ column (written as a small ‘1’ in this column).
The digit 5 from the number 4.5 is then used to multiply the digit 3 in the ‘tenths’ column from the number 2.33

\[ 5 \times 3 = 15 \]
and the 1 carried over is added
\[ 15 + 1 = 16 \]

- The 6 ‘ones’ in this number are written below the line beneath the 5 of the number 4.5 under the ‘tenths’ column and the 1 ‘ten’ from this number is carried over to the ‘ones’ column

```
   H T O t h
  2. 3 3
  4. 5
  1 6 5
```

The digit 5 from the number 4.5 is then used to multiply the digit 2 in the ‘ones’ column from the number 2.33

\[ 5 \times 2 = 10 \]
and the 1 carried over is added
\[ 10 + 1 = 11 \]

- The 1 ‘one’ in this number is written below the line beneath the 4 of the number 4.5 under the ‘ones’ column and the 1 ‘ten’ from this number is written below the line in the ‘tens’ column

```
   H T O t h
  2. 3 3
  4. 5
  1 1 6 5
```

Moving left to the ‘ones’ column:
The first action is to write a zero in the ‘hundredths’ column below the 5 in the first part of the answer. The overall answer to this calculation is calculated by adding up three short answers and this zero acts as a placeholder within the short answer, maintaining the value of the digits.

```
   H T O t h
  2. 3 3
  4. 5
  1 1 6 5
  0
```
The digit 4 from the number 4.5 is used to multiply the digit 3 in the ‘hundredths’ column from the 2.33. It is then used to multiply the digit 3 in the ‘tenths’ column and then the digit 2 from the number 2.33

\[ 4 \times 3 = 12 \]

- Similar to the earlier multiplication examples, the 2 from the 12 is recorded below the line beneath the ‘tenths’ column and the 1 from the 12 is carried over to the ‘ones’ column (written as a small ‘1’ in this column).

<table>
<thead>
<tr>
<th>H</th>
<th>T</th>
<th>O</th>
<th>t</th>
<th>h</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>6</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td></td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

The digit 4 from the number 4.5 is then used to multiply the digit 3 in the ‘tenths’ column from the number 2.33

\[ 4 \times 3 = 12 \]

and the 1 carried over is added

\[ 12 + 1 = 13 \]

- The 3 ‘ones’ in this number are written below the line beneath the 4 of the number 4.5 under the ‘ones’ column and the 1 ‘ten’ from this number is carried over to the ‘tens’ column (written as a small ‘1’ in this column).

<table>
<thead>
<tr>
<th>H</th>
<th>T</th>
<th>O</th>
<th>t</th>
<th>h</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>6</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>2</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

The digit 4 from the number 4.5 is then used to multiply the digit 2 in the ‘ones’ column from the number 2.33

\[ 4 \times 2 = 8 \]

and the 1 carried over is added

\[ 8 + 1 = 9 \]

- This number is written below the line in the ‘tens’ column.

<table>
<thead>
<tr>
<th>H</th>
<th>T</th>
<th>O</th>
<th>t</th>
<th>h</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>6</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>3</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>
The next stage of the calculation involves adding up the individual answer numbers that are written below the original sum.

\[
\begin{array}{c}
\text{H T O t h} \\
2.33 \\
4.5 \\
\times \\
11.65 \\
9.320 \\
\hline
10485
\end{array}
\]

The final stage of the process is identifying the correct location for the decimal point. This is obtained by adding up the number of digits to the right of the decimal point in the numbers being multiplied together. The upper number 2.33 has two digits after the decimal point and the lower number 4.5 has one digit after the decimal point. Adding these together gives three digits, so there are three digits after the decimal point in the answer, making our final answer 10.485.
**Division**

Dividing involves sharing quantities in equal parts. It’s the opposite of multiplication, so you can check your answer by multiplying it by the number that you used to divide:

\[ 36 \div 9 = 4 \]

Check: \( 4 \times 9 = 36 \)

*This worked example comes from pages 33-34 of Numeracy and Clinical Calculations for Nurses*
Some divisions are more complex than the example above and a modified method is used.

This worked example comes from pages 35-36 of Numeracy and Clinical Calculations for Nurses

\[
221 \div 13 =
\]

**Method**
The division is calculated from left to right, starting under the largest unit column – ‘hundreds’.

**Process**
Starting with the ‘hundreds’ column:
13 divided into 2 (2 ÷ 13) will not go because 2 is smaller than 13. 13 is now divided into 22 (22 ÷ 13) which goes once. To record this, a 1 is written above the line in the ‘tens’ column.

\[
\begin{array}{c}
H \\
\hline
1 \\
2 \\
13 \\
\end{array}
\]

As 13 does not divide into 22 exactly, we need to find out what remains.
Finding the remainder:
This is done by subtracting 13 from 22 (22 – 13) which equals 9. In Example 2.11 above we placed this remainder number next to the number in the ‘ones’ and then carried on the division in the same way. However, for more complex divisions it can be useful to record each stage of the calculation as follows:
- Start by writing the 13 underneath the 22 and then subtract 13 from 22 to give 9
- Record the 9 below the 3 in the ‘tens’ column
- This procedure is done every time a number doesn’t divide exactly into another one.
Completing the division:
13 is then divided into the remainder 9 (9 ÷ 13) but this won't go because 13 is larger than 9 so the 1 from the 'ones' column of 221 is brought down to make this number 91.
13 can then be divided into 91 (91 ÷ 13) and the result 7 is placed above the line in the 'ones' column. As 91 ÷ 13 = 7 exactly, there is no need to find a remainder.

Answer:
This gives the answer of 1 ‘ten’ and 7 ‘ones’ or 17.

Checking
To check your answer: 17 × 13 = 221.
Decimals

Decimals are used to express numbers that are made up of a whole number and part of a whole number. For example, digoxin (a drug used to control an irregular heart rate) can be prescribed in doses of 62.5 micrograms. The decimal point is used to signpost the end of the whole number and the beginning of the amounts that are less than one. 62.5 tells us that the number is made up of six ‘tens’, two ‘ones’ and five ‘tenths’. We say the number as ‘sixty-two point five’.

Factors and fractions

When calculating using multiplication or division, you might have noticed patterns in the numbers. For example, the number 18 can be broken down into smaller numbers that divide into it:

- 1 and 18
- 2 and 9
- 3 and 6

These are called ‘factors’ of 18. Identifying the factors of a number will help you to see patterns and relationships in numbers, which will help the development of your multiplication and division skills.

Fractions, like decimals, are used to express quantities less than one. In the clinical environment amounts less than one should be expressed using the decimal system – for example 62.5 micrograms digoxin, and not 62 ½.

Fractions can be converted into decimal fractions by dividing. For example, ⅛ is 1 ÷ 4, which is 0.25.

You may be asked to ‘simplify’ a fraction. This involves using factors that are common to both the number above the line (the numerator, which tells you how many of that fraction you have) and the number below the line (the denominator, which tells you what each fraction is worth). For example, to simplify 15/18 you can see that 3 will divide into both 15 and 18; 3 is a common factor of both numbers.

15 ÷ 3 = 5
18 ÷ 3 = 6

So 15/18 = 5/6 in simplified form.
Percentages

‘Per cent’ means per hundred, and a percentage is indicated by the symbol %. So if your car insurance costs £100 and you are offered a 10% discount, you will receive a reduction of £10: 10% is 10 per hundred.

This worked example comes from page 46 of Numeracy and Clinical Calculations for Nurses

The asthma clinic sees 75 male and 125 female patients during March. What percentage of the patients are female?

Method
Percentages are calculated by dividing the number of items in the category by the total number in the group, and then multiplying this by 100.

Process
The total number of patients is $75 + 125 = 200$

The percentage of females is calculated by dividing the number of female patients by the total number of patients, then multiplying by 100:

Females $= \frac{125}{200} \times 100 = 62.5\%$
The SI system of measurement

In healthcare we need to measure things, such as weight, volume and length (or height).

The SI unit of weight is the kilogram (kg), which can be subdivided into smaller units. The unit smaller than one kilogram is a gram, and there are 1000 grams in one kilogram:

1000 g = 1 kg

The SI unit of volume is the litre, and the unit smaller than the litre is the millilitre. Abbreviations of units are usually written in lower case, but because litre abbreviated to ‘l’ could be confused with the number ‘1’ it is abbreviated to a capital letter ‘L’. There are 1000 millilitres in one litre:

1000 ml = 1 L

The SI unit of length and height is the metre (m) and the smaller unit is the millimetre (mm).

1000 mm = 1 m
Converting units

Sometimes we need to convert from a larger unit to a smaller unit, or vice versa. The rule of thumb is that converting from a larger unit to a smaller unit means that you multiply by 1000; converting from a smaller unit to a larger unit means that you divide by 1000.

To convert 0.125 kilograms to grams:

0.125 kg \times 1000 = 125 \text{ g}.

It’s useful to remember that when you multiply by 1000, the decimal point moves three places to the right.

To convert 250 millilitres to litres:

250 \text{ ml} \div 1000 = 0.25 \text{ L}

When you divide by 1000, the decimal point moves three places to the left.
Sample Tests

Note: These sample tests are similar to those you are likely to be given as part of your application process. You should ask to see a sample test from your chosen institution in advance to make sure you are comfortable with all the questions they are likely to ask you.

No calculators allowed. Answers at the end of the tests.

Test 1

1. 47 + 26 =

2. 27.25 + 36.63 =

3. If there are 1000 millilitres (ml) in a litre (L), how many millilitres in 7.14 litres?

4. You are asked to get all of your patients to fill in a health survey. In a month you have seen 220 patients and 85% have completed the survey. How many have completed the survey?

5. 17 × 8 =

6. What is 15% of 820ml?

7. You are asked to check on a patient every 90 minutes. You first check on them at 13:15, what time is it when you check on them for the third time?

8. You are measuring a patient’s fluid balance over 24 hours. If her intake is 3.25L and her output is 1625ml, what is her overall fluid balance? (answer in ml)

9. 4/5 of 20 =

10. Write 15/25 in its simplest form

11. 85g × 25 = (answer in kg)

12. Write 60% as a decimal
Test 2

1. \( 61 + 133 + 27 = \)

2. You aim to drink 1.6 litres of water a day. If your glass holds 330 ml, how many glasses do you need to drink per day (to the nearest whole glass)?

3. \( 127g - 79g = \)

4. What is 20% of 240?

5. \( 27ml \times 14 = \) (answer in litres)

6. Write \( \frac{4}{5} \) as a decimal

7. \( 472 \div 4 = \)

8. \( 1272 \div 53 = \)

9. A stop-smoking course has a 60% success rate. If 150 people go on the course, how many stop smoking?

10. A patient takes 3 pills a day – one in the morning, one at lunchtime and one before bed. If her first pill is taken on Monday morning, how many will she have taken in total after lunch on Thursday?

11. What is 1kg plus 720 grams? (answer in kg)

12. How many millilitres are there in 0.125 litres?
# Test 3

1. \[ 1.22\text{kg} + 4791\text{g} + 586\text{g} = \text{(answer in grams)} \]

2. A patient who weighs 100 kg is told he needs to reduce his weight by 23%. What is his target weight?

3. Write \( \frac{7}{8} \) as a percentage

4. A breakfast cereal contains 13% sugar. How much sugar (in grams) is there in 100g of cereal?

5. How much sugar is there in 250g of the same cereal?

6. \[ 180 \div 3 = \]

7. \[ 92.78 - 27.43 = \]

8. A patient takes 3 pills a day to treat her condition. How many pills does she need for a month (28 days)?

9. Simplify \( \frac{66}{99} \)

10. \[ 7.1\text{L} - 340\text{ml} = \text{(answer in litres)} \]

11. In a class of 33 nursing students, \( \frac{2}{3} \) of them have iPhones. How many have iPhones?

12. How many millilitres are there in 1.65 litres?
**Answers:**

**Test 1**
1. 73  
2. 63.88  
3. 7140ml  
4. 187  
5. 136  
6. 123ml  
7. 16:15  
8. 1625ml  
9. 16  
10. 3/5  
11. 2.125kg  
12. 0.6

**Test 2**
1. 221  
2. 5  
3. 48g  
4. 48  
5. 0.378L  
6. 0.8  
7. 118  
8. 24  
9. 90  
10. 11  
11. 1.72kg  
12. 125ml

**Test 3**
1. 6597g  
2. 77kg  
3. 87.5%  
4. 13g  
5. 32.5g  
6. 60  
7. 65.35  
8. 84  
9. 2/3  
10. 6.76L  
11. 22  
12. 1650ml

Each university will have different pass marks for their numeracy tests but you should be aiming for at least 75% in these tests. To improve, or maintain, your numeracy skills we recommend:

**Numeracy and Clinical Calculations for Nurses**  
*Neil Davison*  

**Reviewers’ comments:**

Absolutely fab book. I struggle often in this area and it has helped me on loads!!

Great - I really needed this! Great to either work through or just go to particular points that I needed to work on. Would recommend to any student nurse/midwife.

Got on very well with this book, definitely one to get!

An excellent book for all nurses and allied health professionals to help develop or improve their numeracy skills which are so invaluable in healthcare.

This is a great book. It starts with all the basics and talks you through everything in an easy to understand way. Great if you’ve been out of formal education for a while or are just a bit rusty!