Section 3: Revision tests

Section 3 provides additional resources for the chapter and term revision tests found in the Student’s Book. The chapter and term tests have been recreated into easy to print test sheets that you can use for formal assessment with your class.

The answers to the chapter and term tests were not given in the Student’s Book answers section, so you can conduct your assessments knowing that the students can’t copy the answers from their Student’s Book.

There are four sub-sections:
1. Chapter revision test sheets for printing
2. Answers to the chapter revision tests
3. Term revision test sheets for printing
4. Answers to the term revision tests

The chapter revision tests show how well the students have grasped the content of the chapter. There are a number of possible ways of managing the chapter revision tests:
1. As a formal class test on completion of the work of the chapter
2. As homework, after completing the work of the chapter
3. As classwork, where students, in pairs or small groups, work through the test in discussion with each other and the teacher
4. As a formal test at some point in the school year after revising the chapter topic

Given the time constraints of the school year, we strongly recommend that methods 2 or 3 be considered. As the only person with direct access to the answers, teacher participation is essential.

For ease of completion, the chapter revision tests are included as independent worksheets in the section that follows. Students simply write down their answers on these sheets. In some instances, students need to construct diagrams on separate pieces of paper. When this happens, make sure that the students write their names and class and the chapter number at the top of the sheets of paper.
Chapter 1 Revision test

1. A baby is 40 days old. What is its age in weeks and days?

2. Add the following times: 2 hours 12 minutes 48 seconds + 55 minutes 22 seconds.

3. LXXIV is in Roman numerals. What number does it represent?

4. Which year were you born? Write this in Roman numerals.

Use the code in Table 1.3 of the Student's Book to answer questions 5 and 6.

5. Translate the following: (6, 9, 7, 8, 20)(13, 1, 12, 1, 18, 9, 1)

6. Translate PURE WATER into code.

7. Use a paper counting board (SB Fig. 1.3) or an abacus (SB Fig. 1.11) to calculate:
   a. \(347 + 288\)
   b. \(921 - 129\)

8. a. Use Table 1.4 of the Student's Book to change the number 805 to Arabic numerals.
   b. Write your age in Arabic numerals.

9. Given the number 34,059. What is the value of the following?
   a. the 9
   b. the 5
   c. the 0
   d. the 4
   e. the 3

10. Set out the following subtraction correctly.

\[
\begin{array}{c|c}
634.7 & \\
\hline
- & 7.425 \\
\hline
\end{array}
\]
Chapter 2 Revision test

1 Write the following numbers using 1s and 0s.
   a a billion ___________________________________________________________
   b a trillion __________________________________________________________

2 Convert 10 000 metres to millimetres. Give the answer without using numerals.
   __________________________________________________________

3 How many seconds in January? [Use a calculator.]
   __________________________________________________________

4 Write the following numbers correctly (grouping digits in threes from the decimal point).
   a 6 billion __________________________________________________________
   b 35028641 _________________________________________________________
   c 4560244 _________________________________________________________

5 Write the following numbers correctly (grouping digits in 3s from the decimal point).
   a 48 millionths _____________________________________________________
   b 0.5028641 _______________________________________________________
   c 4.78400672 _____________________________________________________

6 A newspaper headline says: EXPORTS IN APRIL REACH N$2.65 TRILLION. Write this number using digits only.
   __________________________________________________________

7 Express the following measures in digits only.
   a 0.7 million litres ________________________________________________
   b US$90 billion ___________________________________________________

8 The Sun is 149 600 000 km from our planet Earth. Write this number in a mixture of digits and words.
   __________________________________________________________

9 Write 7 ten thousandths as a decimal fraction.
   __________________________________________________________

10 Write the following as decimal fractions.
    a 74 thousandths _________________________________________________
    b \( \frac{750}{1 000 000} \) _______________________________________________
Chapter 3 Revision test

1 Find all the factors of 36.

2 Which of the numbers 2, 3, 4, 5, 6, 7, 8 and 9 are factors of 42?

3 Write down all the prime numbers between 30 and 60.

4 Express 140 as a product of prime factors.

5 Express 144 as a product of primes in index form.

6 Write the common factors of 24 and 84.

7 Find the HCF of 24, 84 and 120.

8 The grid contains three multiples of 4. Complete the grid with six other multiples of 4.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>12</td>
<td>16</td>
</tr>
</tbody>
</table>

9 Write down two common multiples of 2, 5 and 7.

10 Find the LCM of $2^3 \times 3^2 \times 5$, $2 \times 3^2 \times 7$ and $2^2 \times 3 \times 5^2$. Leave your answer in prime factors in index form.
Chapter 4 Revision test

1. Find the missing numbers.
   a. \( \frac{17}{6} = \square \) \( \frac{6}{6} \) _____________
   b. \( 6\frac{7}{8} = \square \) _____________
   c. \( \frac{4}{7} = \square \) _____________

2. Reduce the following fractions to their lowest terms.
   a. \( \frac{15}{100} \) _____________
   b. \( \frac{30}{78} \) _____________
   c. \( \frac{98}{112} \) _____________

3. Simplify the following.
   a. \( \frac{5}{6} + \frac{3}{4} \) _____________
   b. \( \frac{11}{12} - \frac{3}{8} \) _____________
   c. \( 1\frac{1}{3} + 3\frac{1}{4} + 2\frac{1}{2} \) _____________

4. During a day a student spends 7 hours sleeping, \( \frac{1}{4} \) of the day studying and \( \frac{1}{6} \) of the day travelling. What fraction of the day is left for other things?

5. Simplify.
   a. \( \frac{5}{6} \times 12 \) _____________
   b. \( \frac{2}{3} \) of 8 _____________
   c. \( \frac{5\frac{1}{3}}{3\frac{1}{4}} \) _____________

   a. \( 6\frac{3}{4} ÷ 9 \) _____________
   b. \( 4\frac{2}{7} ÷ \frac{3}{14} \) _____________
   c. \( 5\frac{2}{5} ÷ 4\frac{2}{3} \) _____________

7. A clinic uses \( \frac{1}{3} \) of its budget for anti-malarial drugs. It uses \( \frac{3}{5} \) of the remaining budget for immunisations. What fraction of the budget is left for other things?

8. Express 2 min 30 sec as a fraction of \( \frac{3}{4} \) hour. Give your answer in its lowest terms.

9. Express 250 ml as a percentage of 2 litres.

10. A trader starts with 80 mangoes. She sells 36 during the day. What percentage remains at the end of the day?
Chapter 5 Revision test

1 Find the number that makes each sentence true.
   a \(9 + 6 = \square\) __________________
   b \(9 - \square = 6\) __________________
   c \(24 = \square \times 3\) __________________
   d \(\square \div 7 = 6\) __________________

2 There is more than one box in each sentence. Put the same number in both boxes to make the sentence true.
   a \(33 = \square + \square + \square\) ____________
   b \(\square = 26 - \square\) ____________
   c \(36 = \square \times \square\) ____________
   d \(\square + \square = 45 - \square\) ____________

3 Find the value of the following if 7 goes in each box.
   a \(\square + \square\) ____________
   b \(18 - (\square + \square)\) ____________
   c \(\square \times \square + 1\) ____________
   d \(\square - (21 \div \square)\) ____________

4 Each sentence is true. Find the values of \(p\), \(q\), \(r\) and \(s\).
   a \(p = 8 + 3\) __________________
   b \(q = 7 - 4\) __________________
   c \(14 - r = 8\) __________________
   d \(19 = s + 3\) __________________

5 Each sentence is true. Find the values of \(w\), \(x\), \(y\) and \(z\).
   a \(w = 21 + 3\) __________________
   b \(x = 3 \times 8\) __________________
   c \(39 = y \times 3\) __________________
   d \(9 = z + 8\) __________________

6 Each sentence is true. Find the numbers that the letters stand for.
   a \(m + m = 20\) __________________
   b \(32 - n = n\) __________________
   c \(64 \div p = p\) __________________
   d \(q \times q = 1\) __________________

7 Find the value of the following when \(y = 5\).
   a \(y + 9\) __________________
   b \(9 - y\) __________________
   c \(5 + y\) __________________
   d \(y \times 8\) __________________

8 Find the value of the following when \(z = 11\).
   a \(z + z\) __________________
   b \(z - z\) __________________
   c \(9 + (z + z)\) __________________
   d \(z + (5 \times z)\) __________________

9 A graph book costs \(x\). The cost of 5 graph books is 450.
   a What is the value of \(x\)? _______________________________________
   b What would be the total cost of a graph book and a pen costing 60?
     _______________________________________

10 A tank contains 6 000 litres of water. After taking 20 buckets of water from the tank, only 5 700 litres remain. If each bucket contains \(n\) litres, what is the value of \(n\)?
   _______________________________________

________________________________________
Chapter 6 Revision test

1 Write down at least ten everyday objects that have a geometrical solid shape.

__________________________________________________________________________
__________________________________________________________________________

2 Look at Fig. 1. There are four layers made of small cubes. Each layer has 9 small cubes. Suppose you have a cuboid with five such layers.

![Fig. 1](image)

a Make a sketch of the five-layer cuboid.

b How many small cubes altogether does it contain?

_______________________________________________________________________

c If each small cube is 1 cm × 1 cm × 1 cm, how long is the longest edge of the cuboid?

_______________________________________________________________________

3 Look at the hexagonal prism in Fig. 2. Copy and complete Table 1.

![Fig. 2](image)

<table>
<thead>
<tr>
<th>Number of vertices, faces and edges that I can see in Fig. 2</th>
<th>Number of vertices, faces and edges altogether on a solid hexagonal prism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertices</td>
<td>Faces</td>
</tr>
</tbody>
</table>

Table 1
4 Fig. 3 and Fig. 4 show different nets that will fold to make a cube.

![Fig. 3](image1.png)  ![Fig. 4](image2.png)

Draw another different net of a cube. (There are nine more altogether.)

5 Use the method of Fig. 6.22 on page 43 of the Student’s Book to draw a skeleton view of a triangular prism.

6 A wire cuboid is 10 cm long, 8 cm wide and 6 cm high. What is the total length of the wire in the cuboid?
7 Draw a skeleton view of a pentagonal-based pyramid. (A pentagon has five sides.) How many vertices, faces and edges does the pyramid have?

__________________________________________________________________________

8 Look at Fig. 5. If you fold this net to make a cuboid:

Fig. 5

a Which edge will join to IJ? .................................................................
b Which points will join to point J? .................................................................

9 Look at Fig. 6.

Fig. 6

a Along which edges do EFGH and BCHG meet? .................................................................
b Which edges meet at vertex C? .................................................................

10 Look carefully at the drawings in Student’s Book Chapter 6. Write down the figure numbers of those solids with:

a no vertices .................................................................
b only one vertex .................................................................
Chapter 7 Revision test

1 Write \( b + b + b + b + b + b + b \) in a shorter way.

2 \( 8y = \square \times \square \). What should go in the boxes?

3 a Is \( 8y \) a positive or negative term?

   b What is the coefficient of \( y \) in \( 8y \)?

4 a Are \( 8y \) and \( 3z \) like terms or unlike terms?

   b Is it possible to simplify \( 8y + 3z \)?

   c Why?

5 Simplify \( 12m - 19m + 10m \).

6 Simplify \( 3x + 10y + 6x \).

7 Simplify \( 7r - 2s - 6r \).

8 \( 7a + 12b - 3a - 7b \) simplifies to \( \square a + \square b \). What numbers go in the boxes?

9 \( 9b + 2 - 9 + b \) simplifies to \( 10b \square 7 \). What sign goes in the box?

10 A village contains \( n \) people. A medical team inoculates \( m \) people each day against yellow fever. After four days, how many people still need to be inoculated?
Chapter 8 Revision test

1 A student makes a note of the positions of the hands of a clock at 9 a.m. and 12 midday.
   a How many revolutions did the minute hand make during this time?
   _________________________________________________________________________
   b How many revolutions did the hour hand make in the same time?
   _________________________________________________________________________

2 What is the obtuse angle between the hour hand and the minute hand of a clock at 8 o’clock?
   _________________________________________________________________________

3 Find, in degrees, the angle between the hour hand and the minute hand of a clock at:
   a 14 to 5 _______________________
   b 14 past 3 _______________________

4 Refer to Fig. 7. Copy and complete Table 2.

<table>
<thead>
<tr>
<th>angle</th>
<th>name of angle</th>
<th>type of angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>PQR or RQP</td>
<td>acute</td>
</tr>
<tr>
<td>b</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2
5 Read the sizes of the angles in Fig. 8.
   a _______________________________ b ________________________________

   Fig. 8

6 Use a protractor to measure angles a, b, c, d, e, f, g in Fig. 7.
   ____________________________________________________________________
   ____________________________________________________________________

7 Use a protractor to construct an angle of:
   a 55°  b 116°.

8 Draw any four-sided shape (i.e. a quadrilateral).
   a Use a protractor to measure the four angles of the quadrilateral.
   b Find the sum of the four angles.
   _____________________________________________________________________
9 Repeat question 8 with a different quadrilateral. What do you notice?

__________________________________________________________________________
__________________________________________________________________________

10 Draw a triangle such that one of its angles is obtuse. Measure the three angles of the triangle. Find their sum. What do you notice?

__________________________________________________________________________
__________________________________________________________________________

Chapter 9 Revision test

1. Do the following mentally. Write down the answers only.
   a. $0.5 + 0.2$
   b. $0.5 - 0.2$
   c. $1.6 + 0.9$
   d. $7 - 3.6$
   e. $7.8 + 1.5$
   f. $0.59 - 0.36$
   g. $24.8 + 8.8$
   h. $21.2 - 16.7$

2. What is the difference between 59.2 cm and 14.6 cm?

3. Write the following as decimal numbers.
   a. $5.93 \times 1000$
   b. $23.8 \div 100$

4. Express 675 cm in metres.

5. The total mass of eight identical building blocks is 31.52 kg. Find the mass of 1 block.

6. Express the following as terminating decimals.
   a. $\frac{13}{25}$
   b. $\frac{7}{16}$

7. Express the following as terminating decimals.
   a. $\frac{5}{9}$
   b. $\frac{11}{6}$

8. Express the following as fractions in their lowest terms.
   a. $0.85$
   b. $3.68$

9. Express the following decimals as percentages.
   a. $0.75$
   b. $0.175$
   c. $0.002$
   d. $0.1\dot{6}$

10. What is the total pay for someone who works 42 hours and gets $645 per hour?
Chapter 10 Revision test

1. David has 80 more than Mary.
   a. If Mary has 340, how much does David have? _________________________
   b. If Mary has \( n \) Naira, how much does David have? _________________________

2. Daudu is 7 cm taller than Mariamu.
   a. If Daudu is 1 m 65 cm tall, how tall is Mariamu? _________________________
   b. If Daudu is \( x \) cm tall, how tall is Mariamu? _________________________
   c. If Mariamu is \( 8y \) cm tall, how tall is Daudu? _________________________

3. a. How many days are there in 3 weeks? _________________________
   b. How many days are there in \( w \) weeks? _________________________
   c. I spent \( x \) days in another town last year. How many weeks was this? _________________________

4. a. What is the cost of 4 chairs at \( \text{₦} \)10 000 per chair? _________________________
   b. What is cost of \( m \) of the above chairs? _________________________
   c. What is the cost of 6 chairs at \( \text{₦} \) \( y \) per chair? _________________________

5. A book has a mass of \( k \) kg. What is its mass in grams? _________________________

6. A piece of string is 5 m long. It is cut into \( n \) pieces, each the same length. What is the length of each piece:
   a. in metres _________________________
   b. in cm? _________________________

7. Team A scored three times as many points as Team B.
   a. Which team scored more points? _________________________
   b. If Team A scored \( n \) points, how many points did Team B score? _________________________

8. A square mat has a side of length 3 metres. What is the total area of \( x \) of these mats? _________________________

9. During a period of \( x \) weeks there were 13 days when it didn't rain. On how many days did it rain? _________________________

10. A sum of \( \text{₦} \)5 000 is shared equally between \( x \) girls. One of the girls spends \( \text{₦} \)360. How many naira does she have left? _________________________
Chapter 11 Revision test

In Fig. 9, ABCD is a rectangle with centre O.
Use Fig. 9 to answer Questions 1 to 3.

1 a Name a line equal in length to AB. _________
   b Name a line equal in length to AC. _________
   c Name a line equal in length to AD. _________
   d Name a line equal in length to AO. _________

2 Name two obtuse angles. ______________________________________________________

3 Name three angles equal in size to OÂB. __________________________________________

In Fig. 10, PQRS is a square with centre M.
Use Fig. 10 to answer Questions 4 and 5.

4 Name as many isosceles triangles as you can. ______________________________________

5 What are the sizes of the angles in all these triangles? ________________________________

In Fig. 11, △XYZ is isosceles. MY is its line of symmetry.
Use Fig. 11 to answer Questions 6 and 7.

6 If XYZ = 34°, find the sizes of as many of the other angles in Fig. 11 as you can.

7 If XM = 5 cm, what is the length of the shortest side of △XYZ? _______________________

8 How many equilateral triangles can you see in each of the shapes in Fig. 12?__________________
9 a Are all the shapes in Fig. 13 quadrilaterals? __________________________________________________________________________

Fig. 13

b Name as many of the quadrilaterals as you can.

10 Draw a circle of radius 3 cm. Mark about 12 points on its circumference. Name the top point P.
(See Fig. 14) Draw a circle with one of the other points as centre so that the circumference goes through P. Repeat this for every point on the circumference. What shape does your final pattern look like?

Fig. 14
Chapter 12 Revision test

1 Which is greater?
   a  -3 or 4
   b  -4 or -7
   c  -5 or 3
   d  0 or -5
   e  2 or -15
   f  -7 or -10

2 The temperature during the day in a cold country is 9 °C. At night the temperature falls by 13 °C. What is the night temperature?

__________________________________________________________________________

3 Abudu and Baba have no money, but Abudu owes ₦450 to Baba. When Friday comes they both get the same wages. Abudu repays his debt to Baba. Baba now has more money than Abudu. How much more?

__________________________________________________________________________

4 What must be added to:
   a  3 to make 8
   b  -1 to make 2
   c  16 to make 4
   d  3 to make -8
   e  -35 to make -27
   f  -6 to make -4?

5 What must be subtracted from:
   a  12 to make 8
   b  6 to make -10
   c  -2 to make -7
   d  8 to make 12
   e  -3 to make 4
   f  -10 to make -3?

6 A woman has ₦23 467 in her bank account. She writes a cheque for ₦39 500. How much will she be overdrawn?

__________________________________________________________________________

7 In the year AD45 a man was 63 years old. In which year was he 5 years old?

__________________________________________________________________________
8 Copy and complete the tables in Fig. 15. For example, in:
   a  \(-1\) + (+3) = +2 enter +2 across from –1 and under +3.
   b  \(-1\) – (+3) = –4 enter -4 across from –1 and under +3.

<table>
<thead>
<tr>
<th></th>
<th>First</th>
<th>Second</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>–3</td>
<td>–2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>–1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>+1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>+2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>+3</td>
<td></td>
</tr>
</tbody>
</table>

Fig. 15

9 Simplify the following.
   a  \(-7\) – (–16) – 3
   b  1 + (–4) – (–3)
   c  800 – (+500) – (–150)
   d  –50 + (–25) – (+45)
   e  6x – 9x – (–5x)
   f  24y + 12y – (–10y)

10 Simplify the following.
   a  \(1\frac{3}{4} - 2\frac{1}{4}\)
   b  –2.8 + 6.3
   c  4.8 – (–3.9)
   d  1\frac{1}{2} – 3\frac{2}{3}
   e  7.2 °C – 9.6 °C
   f  –5.4 °C + 8.6 °C
Chapter 13 Revision test

1 Place your textbook on your desk. Measure the perimeter of its front cover.

2 Place your non-writing hand flat on a large sheet of paper. Draw around the hand. Measure the perimeter of your hand.

3 Table 3 gives details about some rectangles and squares.

<table>
<thead>
<tr>
<th></th>
<th>length</th>
<th>breadth</th>
<th>perimeter</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>8 m</td>
<td>5 m</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>9.3 m</td>
<td>7 m</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>7 cm</td>
<td>7 cm</td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>5.1 km</td>
<td></td>
<td>15.4 km</td>
</tr>
<tr>
<td>e</td>
<td></td>
<td>4.4 cm</td>
<td>25 cm</td>
</tr>
<tr>
<td>f</td>
<td>12 cm</td>
<td></td>
<td>48 cm</td>
</tr>
</tbody>
</table>

Table 3

a Complete the table.

b Which of the shapes recorded in the table are squares?

4 A football pitch measures 80 m by 50 m. In a training session, the coach tells the team to run 10 times round the pitch. How far do they run?

5 Find the perimeter of the parallelogram and trapezium in Fig. 16.

a

Fig. 16
6 The perimeter of a parallelogram is 33 cm. One of its sides is 9 cm long. What are the lengths of its three other sides?

7 The minute hand of a clock is 10.5 cm long. How far does the tip of the hand travel in one hour? (Use the value 3.14 for \( \pi \)).

8 A disc has a diameter of 30 cm and rotates at \( 33 \frac{1}{3} \) revolutions per minute. How far does a point on the edge of the disc travel in a minute? Use the value 3.14 for \( \pi \) and give your answer in metres.

9 A bicycle wheel is 56 cm in diameter. How many complete turns does it make in travelling 1 km? Use the value \( \frac{22}{7} \) for \( \pi \).

10 Calculate the perimeter of the shapes in Fig. 17.

Fig. 17
Chapter 14 Revision test

1 Table 4 gives details about some rectangles and squares. Complete the table.

<table>
<thead>
<tr>
<th></th>
<th>length</th>
<th>breadth</th>
<th>area</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>8 m</td>
<td>5 m</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>7 cm</td>
<td>7 cm</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>9.3 m</td>
<td>7 m</td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>5.1 km</td>
<td></td>
<td>30.6 km²</td>
</tr>
<tr>
<td>e</td>
<td>3.2 cm</td>
<td></td>
<td>28 cm²</td>
</tr>
<tr>
<td>f</td>
<td>11 m</td>
<td></td>
<td>121 m²</td>
</tr>
</tbody>
</table>

Table 4

2 Calculate the shaded areas in the diagrams in Fig. 18. All lengths are in metres and all angles are right angles.

Fig. 18
3 A concrete floor is 4 m long and $3\frac{1}{2}$ m wide. Calculate:
   a the area of the floor,
   
   b the cost of making the floor if concrete is N\,\text{2 400} per m$^2$.

4 What is the area, in m$^2$, of the floor of a hall that is 6 metres square? (6 metres square means 6 m by 6 m.)

5 A sheet of 150 gsm drawing paper measures 0.8 m by 0.6 m. 150 gsm means that the mass of the paper is 150 g per square metre. Find the mass of 10 sheets of drawing paper.

6 Calculate the areas of the parallelograms in Fig. 19.

\[ \text{Fig. 19} \]

7 Calculate the height of the parallelogram in Fig. 20.

\[ \text{Fig. 20} \]
8 Calculate the areas of the quadrilaterals in Fig. 21.

Fig. 21

9 Complete Table 5 on circles. Use the value $\frac{22}{7}$ for $\pi$.

<table>
<thead>
<tr>
<th></th>
<th>radius</th>
<th>diameter</th>
<th>area</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>35 cm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td></td>
<td>8 m</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td></td>
<td></td>
<td>1 386 cm$^2$</td>
</tr>
</tbody>
</table>

Table 5

10 A circular carpet has a diameter of 3 m.

a What is its radius?

b Calculate its area. Use the value 3.14 for $\pi$ and round your answer to the nearest whole number.
Chapter 15 Revision test

1 Simplify the following.
   a \(9 \times p\) ____________________
   b \(3mn \times 6\) ____________________
   c \(4a \times 5ab\) ____________________

2 Simplify the following.
   a \(18n + 6\) ____________________
   b \(\frac{15m^2}{5}\) ____________________
   c \(\frac{4xy^2}{4xy}\) ____________________

3 Simplify as far as possible.
   a \(7x \times 3 - 13x\) ____________________
   b \(8n + 18n + 6\) ____________________

4 Simplify as far as possible.
   a \(8m - 3 \times 5m + 6m \times 2\) ____________________
   b \((8a - 5) + (4 - 3a)\) ____________________

5 Simplify as far as possible.
   a \(28r + 4 + 2r + 1 \times 5r - 5\) ____________________
   b \(3s \times 2 + 8s + 2 - 9s\) ____________________

6 Write the following without brackets.
   a \((p + 4q) - r\) ____________________
   b \(8a + (5b - 3c) - 9d\) ____________________

7 Write the following without brackets.
   a \((p - q) - (r + s)\) ____________________
   b \((12x + 5y) - (5p - q)\) ____________________

8 Remove the brackets and then simplify.
   a \((12x + 5y) - (5x - 8y)\) ____________________
   b \((5x - 7) - (6 - 4x)\) ____________________

9 A phone card costs \(Np\) and a book costs \(N200\) more than a phone card.
   a What is the cost of a book? ____________________
   b What is the total cost of 3 phone cards and a book? ____________________

10 The lower of two consecutive odd numbers is \(n\). What is the sum of the two numbers? ____________________
Chapter 16 Revision test

1–4 Complete the table of cuboids (Table 6).

<table>
<thead>
<tr>
<th>Qu</th>
<th>length</th>
<th>breadth</th>
<th>height</th>
<th>volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8 m</td>
<td>5 m</td>
<td>2 m</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>9 cm</td>
<td>4 cm</td>
<td>2\frac{1}{2} cm</td>
<td>84 m³</td>
</tr>
<tr>
<td>3</td>
<td>3 m</td>
<td>7 m</td>
<td></td>
<td>180 cm³</td>
</tr>
<tr>
<td>4</td>
<td>4 cm</td>
<td>30 cm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6

5 What is the difference in volume between a 5 cm × 5 cm × 5 cm cube and a 2 cm × 4 cm × 16 cm cuboid?

__________________________________________________________________________
__________________________________________________________________________

6 A classroom is 2.8 m high and has a volume of 182 m³. Calculate the floor area of the classroom.

__________________________________________________________________________
__________________________________________________________________________

7 The internal dimensions of a fuel can are 10 cm by 20 cm by 25 cm. What is its capacity in litres?

__________________________________________________________________________
__________________________________________________________________________

8 A village water tank measures 8 m × 5 m × 3 m.

a What is the capacity of the tank when full?

__________________________________________________________________________
__________________________________________________________________________

b If the village uses about 15 000 litres per day, how many days will a full tank last?

__________________________________________________________________________
__________________________________________________________________________

9–10 Complete Table 7 on prisms.

<table>
<thead>
<tr>
<th>height of prism</th>
<th>area of end face</th>
<th>volume of prism</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>35 cm</td>
<td>4 cm²</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>14 m²</td>
</tr>
</tbody>
</table>

Table 7
Chapter 17 Revision test

Table 8 shows the numbers of educational institutions in a country for the years 2003 and 2013. Use the table to answer the questions that follow.

<table>
<thead>
<tr>
<th>Education institution</th>
<th>2003</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursery schools</td>
<td>34</td>
<td>340</td>
</tr>
<tr>
<td>Primary schools</td>
<td>2,143</td>
<td>2,696</td>
</tr>
<tr>
<td>Junior Secondary Schools (only)</td>
<td>0</td>
<td>157</td>
</tr>
<tr>
<td>Senior Secondary Schools (only)</td>
<td>0</td>
<td>49</td>
</tr>
<tr>
<td>Combined Secondary Schools (JSS + SSS)</td>
<td>212</td>
<td>439</td>
</tr>
<tr>
<td>Teacher Colleges</td>
<td>22</td>
<td>24</td>
</tr>
<tr>
<td>Universities</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 8

1 Which type of educational institution:
   a do you attend now ____________________________
   b have you attended in the past? ____________________________

2 How many primary schools were there in the country in 2013? ____________________________

3 How many primary schools were built between 2003 and 2013? ____________________________

4 Which type of school showed the greatest rate of increase? ____________________________

5 Mention one possible reason for this increase. ____________________________

6 How many schools accepted Primary School leavers in 2003? ____________________________

7 How many schools altogether accepted Primary School leavers in 2013? ____________________________

8 On average, in this country, each JSS can accommodate pupils from four primary schools. Do you think that there will be enough places at JSSs in the years after 2013? ____________________________

9 Name one reason for the introduction of JSS (only) schools during the period. ____________________________

10 Do you think that 24 Teacher Colleges will be enough after 2013? Give reasons. ____________________________
Chapter 18 Revision test

Fig. 22 is a bar chart showing the rainfall (cm) in Kano for each month in a year. Use Fig. 22 to answer the questions that follow.

1. There are 3 Js in Fig. 22. What do they stand for?

________________________________________________________________________

2. Which month had most rainfall?

________________________________________________________________________

3. How many cm of rain fell during that month?

________________________________________________________________________

4. Which months had no rainfall?

________________________________________________________________________

5. Which months had less than 10 cm of rain?

________________________________________________________________________

6. List the six wettest months in rank order.

________________________________________________________________________

7. The wet season is when there is more than 15 cm of rain per month. Name the months in the wet season.

________________________________________________________________________

8. The dry season is when the rainfall is less than 5 cm per month. List the months in the dry season.

________________________________________________________________________

9. Write the total rainfall for the year in centimetres.

________________________________________________________________________

10. Is it true that over half the rainfall for the year fell in just two months? Give a reason.

________________________________________________________________________
Chapter 19 Revision test

1. Say whether the following are true or false.
   a. $\square - 8 = 5$ when $13$ goes in the box.
   b. $11 + \square = 15$ when $26$ goes in the box.
   c. $\square = 4$ when $2$ goes in the box.
   d. $19 \times 2 = \square$ when $28$ goes in the box.

2. Say whether the following are true or false.
   a. $24 = 3x$ when $x = 8$.
   b. $\frac{y}{10} = 3$ when $y = 30$.
   c. $\frac{48}{m} = 6$ when $m = 12$.
   d. $17 = x - 8$ when $x = 25$.

3. Solve the following equations.
   a. $14 + x = 16$
   b. $\frac{y}{6} = 10$
   c. $17 - m = 12$
   d. $\frac{45}{x} = 18$

4. Solve.
   a. $7x = 28$
   b. $\frac{1}{3}y = 4$
   c. $m - 1 = 6$
   d. $32 = 8q$

5. Use the balance method to solve.
   a. $5x = 40$
   b. $\frac{1}{2}m = 16$
   c. $n - 1 = 31$
   d. $7 \frac{1}{2} = \frac{2}{3}q$

Use the balance method to solve the following.

6. $7x + 5 = 40$
7. $26 = 3q + 5$
8. $3x - 13 = 0$
9. $37 = 1 + 4m$
10. $10 = 8y - 52$
1 Find the sizes of the lettered angles in Fig. 23. Write them in the diagrams.

Fig. 23

2 In Fig. 24, \( \hat{B}X \hat{C} = 36^\circ \) and \( \hat{A}X \hat{D} = 126^\circ \).
   a If \( \hat{B}X \hat{D} \) is a right angle, calculate \( \hat{C}X \hat{D} \) and \( \hat{A}X \hat{B} \).
   b Find the size of \( \hat{A}X \hat{C} \).
   c In what way could the drawing be improved?

3 In Fig. 25, \( \hat{E}K \hat{F} = x^\circ \), \( \hat{F}K \hat{G} \) is twice as big as \( \hat{E}K \hat{F} \),
   \( \hat{G}K \hat{H} \) is three times as big as \( \hat{E}K \hat{F} \) and \( \hat{H}K \hat{E} \) is four times as big as \( \hat{E}K \hat{F} \).
   Solve the equation and find the four angles.

4 Draw a pair of parallel lines. Then draw a transversal to cut the lines at P and Q. If one of the
   angles at P is 112°, fill in the sizes of all the other angles in your drawing.
5 Find the sizes of the lettered angles in Fig. 26.
_____________________________________
_____________________________________
_____________________________________

6 Study each diagram in Fig. 27.
Fill in the sizes of the missing angles.

7 State the sizes of the lettered angles in Fig. 28. Give reasons.
_____________________________________
_____________________________________

8 Two angles of a triangle are 45° and 76°. Calculate the size of its third angle.
________________________________________________________________________

9 Draw \( \triangle PQR \) and show \( \hat{P} \) as \( x \). \( \hat{Q} \) is twice as big as \( \hat{P} \) and \( \hat{R} = 51^\circ \).
   a  Make an equation in \( x \).
       _______________________________________
   b  Solve the equation.
       _______________________________________
   c  Fill in the three angles of the triangle.

10 Study the diagram in Fig. 29. Fill in the sizes of the missing angles.
Chapter 21 Revision test

1 Use a ruler, set square and protractor to construct a parallelogram with two sides of 7 cm and 4 cm containing an angle of 50° on a separate sheet of paper.

2 On a separate sheet of paper, construct a trapezium PQRS so that QR = 8 cm, PQ = 5 cm, \( \hat{Q} = 70° \) and \( \hat{R} = 80° \). Measure PR.

3 Look at Fig. 30. Measure the perpendicular distance of point E from the top edge of the page of this book.

4 Use ruler and set square to construct two parallel lines which are 4.5 cm apart.

5 Measure the perpendicular distance between the parallel sides of trapezium PQRS that you drew in question 2.
6 Complete the following diagram on a separate sheet of paper.
   a  Draw a line AC 8 cm long.
   b  Construct the perpendicular bisector of AC.
   c  Construct square ABCD with AC as diagonal. (Make a rough sketch first.)
   d  Measure the length of AB.

7 Complete the following diagram on a separate sheet of paper.
   a  Construct an isosceles ΔABC, such that BA = BC, its base AC = 6 cm and the length of the perpendicular from B to AC is 7 cm. (Make a rough sketch first.)
   b  Measure AB.
   c  Measure ∠ABC.

8 Complete the following diagram on a separate sheet of paper.
   a  Construct a square with sides 5.4 cm long.
   b  Measure the length of its diagonal.

9 Complete the following diagram on a separate sheet of paper.
   a  Draw any large ΔABC.
   b  Draw the perpendicular bisectors of all three sides. They should meet at one point, O.
   c  With centre O and radius OA, draw a circle.
   d  What do you notice about this circle?

10 Complete the following diagram on a separate sheet of paper.
   a  Draw any large ΔPQR.
   b  Use a ruler and a pair of compasses to find the mid-point of each side.
   c  Join P to the mid-point of QR. Likewise, join Q and R to the mid-points of their opposite sides.
   d  What do you notice?
Chapter 22 Revision test

1 Calculate the mean of the following.
   a  7, 5, 14, 12, 5, 11
   b  \( \text{₦}2\,000, \text{₦}1\,800, \text{₦}1\,400, \text{₦}1\,400, \text{₦}1\,200 \)

2 In four successive days a market trader sold 24, 48, 12 and 60 oranges. Calculate the mean daily sale of oranges.

3 The temperatures at midday during a week in Lagos were:
   \( 23^\circ C, 25^\circ C, 24^\circ C, 26^\circ C, 25^\circ C, 26^\circ C, 26^\circ C. \)
   Calculate, to the nearest degree, the mean midday temperature for the week.

4 State the median of the following.
   a  2, 7, 19, 22, 34
   b  78, 67, 55, 45, 39, 29

5 Arrange the following in rank order. Find the median.
   a  18, 13, 25, 6, 9, 16, 8
   b  \( \text{₦}280, \text{₦}750, \text{₦}320, \text{₦}960, \text{₦}990, \text{₦}480 \)

6 State the modes of the following.
   a  18, 18, 18, 26, 26, 36, 37
   b  \( \text{₦}200, \text{₦}700, \text{₦}700, \text{₦}900, \text{₦}900, \text{₦}900, \text{₦}900 \)
7 Find the mode (or modes) of the following.
   a  9, 10, 8, 10, 5, 4, 4, 5, 5, 7, 10

   b  0, 4, 0, 6, 1, 3, 0, 2, 1, 5, 1, 6, 0

8 In a weekly test out of 10, the marks obtained were as follows:
   6, 8, 8, 8, 7, 5, 4, 6, 9, 10, 7, 8, 9, 5, 10, 8.

   a  Complete Table 9.

   mark  5  6  7  8  9  10
   frequency  

   Table 9

   b  Find the mode (or modes) of the data.  

9 Arrange the following numbers in order of size. Find their mean, median and mode.
   8, 10, 7, 9, 13, 8, 12, 6, 8

10 Table 10 gives the ages and frequencies of girls in a choir.

   age (years)  14  15  16  17
   frequency  3  4  5  3

   Table 10

   Find:
   a  the number of girls in the choir

   b  the modal and median ages of the choir

   c  the mean age of the choir.
Chapter 23 Revision test

1. To keep fit, my father walks 10 000 paces each day. If his pace is 68 cm, estimate how far he walks each day (to the nearest km).

2. Which of the following are sensible? Tick those you agree with.
   a. My pencil is 18 m long.
   b. The car weighs about 1 tonne.
   c. My mother is 150 mm tall.
   d. He took 2 hours to tie his shoelaces.
   e. The chicken cost 5.

3. Approximate 67 548 to the nearest:
   a. thousand ________
   b. hundred ________
   c. ten. __________

4. Round off the following to the nearest tenth.
   a. 0.53 ________
   b. 8.57 ________
   c. 6.25 ________
   d. 3.96 ________

5. Approximate 28.07 to the nearest:
   a. ten ________
   b. whole number ________
   c. tenth ________

6. Round off the following to one significant figure.
   a. 693 ________
   b. 0.266 ________
   c. 54 849 ________

7. Round off the numbers in question 6 to 2 significant figures.

8. Round off each number to the nearest whole number. Then find an approximate answer.
   a. 14.8 × 3.3

   b. $\frac{12}{3} + 9\frac{1}{2}$

9. a. Estimate the value of $28 \times 0.745$ by rounding to 1 s.f.

   b. Which of the following is likely to be the accurate value of $28 \times 0.745$:
      i. 2.086   ii. 20.86   iii. 208.6?

10. A cup has a capacity of 320 ml. It takes 58 cups to fill a bucket and 298 buckets to fill a tank. By rounding to 1 significant figure, estimate the capacity of the tank in litres.
Chapter 24 Revision test

Expand the following in the powers of their bases.

1. \(7408_{\text{ten}}\)

2. \(314_{\text{five}}\)

3. \(11010_{\text{two}}\)

Convert the following.

4. \(55_{\text{ten}}\) to a binary number

5. \(11110_{\text{two}}\) to a base ten number

6. Find the value of the square of \(101_{\text{two}}\). Give your answer in base two and base ten.

Calculate the following. Do all working in base two.

7. \(11_{\text{two}} + 110_{\text{two}}\)

8. \(101_{\text{two}} - 10_{\text{two}}\)

9. \(1101_{\text{two}} + 110_{\text{two}} + 111_{\text{two}}\)

10. \(1011_{\text{two}} \times 110_{\text{two}}\)