

THT WORKSHEETS

Selective School Test Preparation

Mathematical Reasoning

Learning Pack

Student Name: _____

Date: _____

Recommended Time: 45–50 minutes

Why This Learning Pack Matters

Selective school tests assess how students think, not just what they know. Success comes from recognising patterns, applying logical reasoning and solving unfamiliar problems efficiently. This Learning Pack has been designed to strengthen those skills through carefully sequenced questions that encourage flexible thinking.

Instructions

- Read each question carefully.
 - Show all working for short-answer questions.
 - Some questions may take longer than others.
 - If you are unsure, move on and return later.
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Question 1

Which number comes next?

3, 6, 12, 24, 48, ____

Question 2

Four friends share **84 stickers** in the ratio **2 : 3 : 4 : 5**.

How many stickers does each friend receive?

Question 3

A number is multiplied by 5 and then 18 is added.

The answer is 93.

What is the original number?

Question 4

A square is cut into **4 equal smaller squares**.

Each of those smaller squares is cut into **4 equal smaller squares**.

How many smallest squares are there altogether?

Question 5

A lift starts on Floor 2.

It goes up 9 floors, down 4 floors, up 6 floors and down 5 floors.

Which floor does it finish on?

Question 6

Three consecutive whole numbers have a total of **126**.

Find the three numbers.

Question 7

A farmer has chickens and sheep.

THT.

There are **18 animals** altogether.

There are **52 legs** altogether.

How many chickens and how many sheep are there?

Question 8

Look at the pattern.

$2 \rightarrow 5$

$4 \rightarrow 9$

$6 \rightarrow 13$

$8 \rightarrow ?$

Question 9

The perimeter of a rectangle is **40 cm**.

Its length is **4 cm longer** than its width.

Find the length and width.

Question 10

A train leaves Station A every **18 minutes**.

Another train leaves the same station every **24 minutes**.

Both trains leave together at **8:00 am**.

At what time will they next leave together?

Question 11

A bag contains:

- 5 red counters
- 4 blue counters
- 3 green counters

THT.

Without looking, what is the **smallest number of counters** that must be taken to guarantee at least **3 counters of the same colour**?

Explain your reasoning.

Question 12

Three children each make a true statement.

Ella: "The number is even."

Noah: "The number is greater than 20."

Zoe: "The number is a multiple of 5."

The mystery number is **30**.

Which statements are true?

Question 13

A clock loses **4 minutes every hour**.

It is correct at **8:00 am**.

What time will the clock show when the actual time is **2:00 pm**?

Question 14

Four friends each chose a different whole number.

The numbers add to **30**.

The largest number is **12**.

The smallest number is **4**.

The remaining two numbers differ by **2**.

What are the four numbers?

Show your working.

Question 15

A school has **240 students**.

Three-fifths play a sport.

One-quarter of those students also learn a musical instrument.

How many students both play a sport and learn a musical instrument?

Question 16

Find the missing number.

18, 27, 39, 54, 72, ____

Question 17

A box contains only **red**, **blue** and **yellow** marbles.

You know there are **10 marbles altogether**, but you do not know how many of each colour.

What is the smallest number of marbles you must take to guarantee at least **4 marbles of the same colour**?

Explain your reasoning.

Question 18

A two-digit number is reversed.

The difference between the two numbers is **27**.

The sum of the digits is **11**.

Find the original number.

Question 19

A square has side length **12 cm**.

A second square has **twice the area**.

THT.

Without using a calculator, determine whether the side length of the second square is **more than**, **less than** or **equal to 17 cm**.

Explain your reasoning.

Question 20

A student says:

"Every prime number is odd."

Is the statement:

- Always true
- Sometimes true
- Never true

Explain your reasoning.

End of Learning Pack

Check your answers before reading the **Learn With the Solutions** booklet.