

THT WORKSHEETS

ICAS Mathematics

Years 5-6

Learning Pack

Student Name: _____

Date: _____

Recommended Time: 45–50 minutes

Why This Learning Pack Matters

ICAS Mathematics challenges students to think beyond routine classroom questions. Success comes from recognising patterns, applying mathematical ideas in unfamiliar situations and reasoning carefully through each problem. This Learning Pack is designed to strengthen those skills while encouraging curiosity and flexible thinking.

Instructions

- Read every question carefully.
 - Show your working where appropriate.
 - Some questions require more than one step.
 - Check your answers before moving on.
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Question 1

A pattern is built using matchsticks.

Figure 1 uses **4** matchsticks.

Figure 2 uses **7** matchsticks.

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Figure 3 uses **10** matchsticks.

How many matchsticks are needed for **Figure 10**?

Question 2

A machine prints numbers following this pattern:

3, 7, 15, 31, ...

What will the **8th** number in the pattern be?

Show how you found your answer.

Question 3

A number is multiplied by itself.

The result is **169**.

What is the original whole number?

Question 4

A rectangle has an area of **72 cm²**.

Its length is **9 cm**.

What is its width?

Question 5

A farmer has **36 metres** of fencing.

He wants to build a rectangular vegetable garden using all the fencing.

Which whole-number dimensions produce the **greatest area**?

Question 6

A digital clock shows **2:58 pm**.

How many minutes later will all four digits be different?

Question 7

A box contains:

- 4 red cubes
- 5 blue cubes
- 6 green cubes

Without looking, what is the smallest number of cubes that must be removed to guarantee **at least five cubes of the same colour**?

Question 8

A square and a rectangle have the **same perimeter**.

The square has side length **10 cm**.

The rectangle has a width of **8 cm**.

What is the rectangle's length?

Question 9

The sum of three consecutive odd numbers is **81**.

Find the three numbers.

Question 10

A school purchases **18 boxes** of pencils.

Each box contains **24 pencils**.

After distributing **387 pencils**, how many pencils remain?

Question 11

A number is divisible by **2, 3 and 5**.

What is the **smallest three-digit number** with this property?

Question 12

A train travels **360 km** in **4 hours** at a constant speed.

At the same speed, how far will it travel in **2 hours 30 minutes**?

Question 13

Three friends each think of a different number.

The numbers total **45**.

The largest is **twice the smallest**.

The remaining number is **15**.

Find all three numbers.

Question 14

A square has side length **14 cm**.

A second square has side length **2 cm less**.

By how many square centimetres do their areas differ?

Question 15

A class votes for their favourite fruit.

Fruit	Votes
Apples	12
Bananas	9
Grapes	15
Oranges	8

What fraction of the class voted for grapes?

Give your answer in its simplest form.

Question 16

Which number is **closest to 1,000**?

- A. 998
- B. 1,004
- C. 995
- D. 1,007

Explain your choice.

Question 17

A number pattern begins:

5, 9, 17, 33, ...

Write the next **two** numbers.

Explain the pattern.

Question 18

A builder stacks cubes to make a solid rectangular prism measuring:

4 cubes long

3 cubes wide

2 cubes high

How many cubes are used altogether?

Question 19

A two-digit number has a digit sum of **9**.

When its digits are reversed, the new number is **27 less** than the original number.

Find the original number.

Question 20

A student says:

"Multiplying two numbers always gives a larger answer."

Is the statement:

- Always true
- Sometimes true
- Never true

Support your answer with examples.

End of Learning Pack

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