

11+ PAST PAPER PACK

Sir William Perkins's School 11+ Maths 2026

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SIR WILLIAM PERKINS'S SCHOOL

Year 7 Mathematics Entrance Examination

Sample Paper

September 2026 Intake

Instructions for Candidates:

- Answer all questions in the spaces provided on the paper.
- This paper is divided into two parts:
 - Part 1 – General Skills**
 - Part 2 – Problem Solving
- You have **1 hour** to complete the paper.
Try to spend about **30 minutes on each part**.
- Show all your working clearly, as **marks may be awarded for your methods**.
- If you find a question too difficult, leave it and move on to the next one.
You can come back to it later if you have time.

Name:

School:

General Skills

Question 1

Calculate

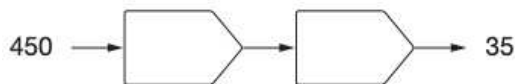
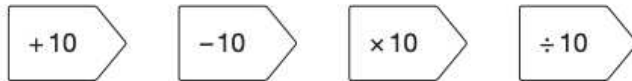
$$486 \div 3$$

.....

Question 2

Fill in the boxes to complete the number chain.

Use any of the following:



First:

Then:

Question 3

Calculate

$$50 + (36 \div 6)$$

.....

Question 4

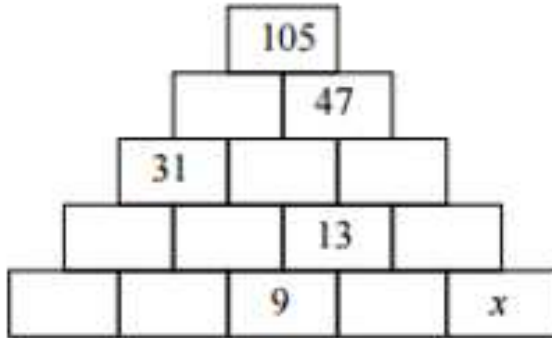
What is $(999 - 99 + 9) \div 9$?

.....

Question 5

In this partly completed pyramid, each rectangle is to be filled with the sum of the two numbers in the rectangles immediately below it.

What number should replace x ?



.....

Question 6

$$5,542 \div 17 = 326$$

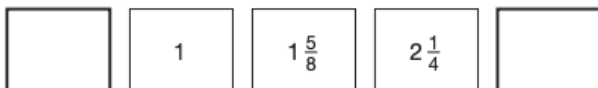
Explain how you can use this fact to find the answer to 18×326 .

.....

Question 7

The numbers in this sequence increase by the same amount each time.

Write the missing numbers.



First =, *Last* =

Question 8

Two decimal numbers add together to equal 1

One of the numbers is 0.007

What is the other number?

.....

Question 9

Match each fraction to the correct decimal card.

The first one has been done for you.

$\frac{3}{10}$

0.03

$\frac{3}{5}$

0.06

$\frac{3}{100}$

0.3

$\frac{3}{50}$

0.6

$\frac{3}{5} = \dots\dots\dots$

$\frac{3}{100} = \dots\dots\dots$

$\frac{3}{50} = \dots\dots\dots$

Question 10

These are some radio programmes one morning.

7:00	Music show
7:55	Weather report
8:00	News
8:15	Travel news
8:25	Sport
8:45	Holiday programme

The Holiday programme lasts for 40 minutes.

At what time does the Holiday programme finish?

.....

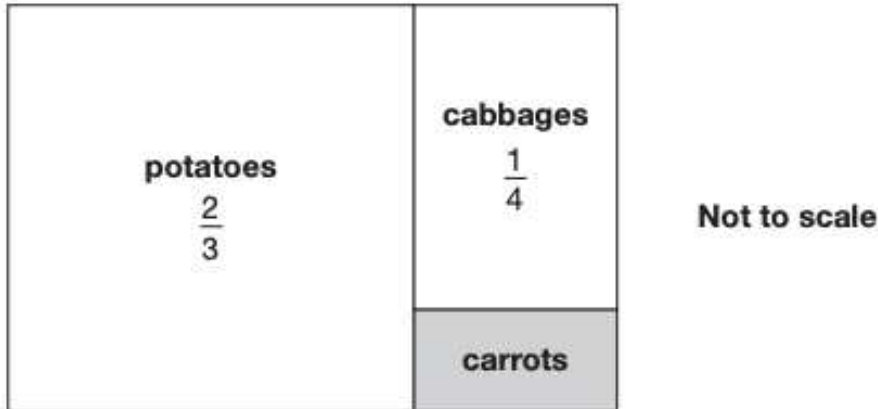
Question 11

The numbers in this sequence increase by the same amount each time.
Write in the missing numbers.

1			13
---	--	--	----

Question 12

This is a diagram of a vegetable garden. It shows the fractions of the garden planted with potatoes and cabbages. The remaining area is planted with carrots.



What fraction of the garden is planted with carrots?

Question 13

This table shows when flights take off at an airport.

Flight number	Destination	Take-off time
AX40	Paris	13:35
BH253	Berlin	14:05
CG008	Rome	15:25
DP369	Paris	15:40
EZ44	Lisbon	16:15
FJ994	Dublin	17:25

The flight to Dublin takes 50 minutes.
What time does it arrive in Dublin?

.....

Question 14

Some children were asked to choose their favourite animal in the zoo.
This table shows the results.

	Girls	Boys
Zebra	9	3
Lion	4	9
Giraffe	7	4
Monkey	8	7
Elephant	6	5

How many more girls than boys chose giraffes?

.....

Question 15

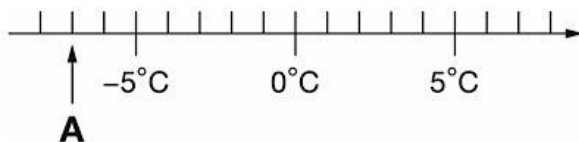
A shop sells school uniform. How much does **one jumper** cost?

Two shirts and one jumper cost £29
One shirt and one jumper cost £21

£

Question 16

Here is part of a temperature scale.



What is the temperature shown at **A**?

..... °C

Question 17

There are 60 pupils in a school.
6 of these pupils wear glasses.



The pie chart is not drawn accurately.
What should the angles be?

..... °
..... °

Question 18

A spinner has **eight** equal sections.



What is the probability of scoring an **even** number on the spinner?

.....

Question 19

The number **20** goes in **two** of the squares of this multiplication grid.

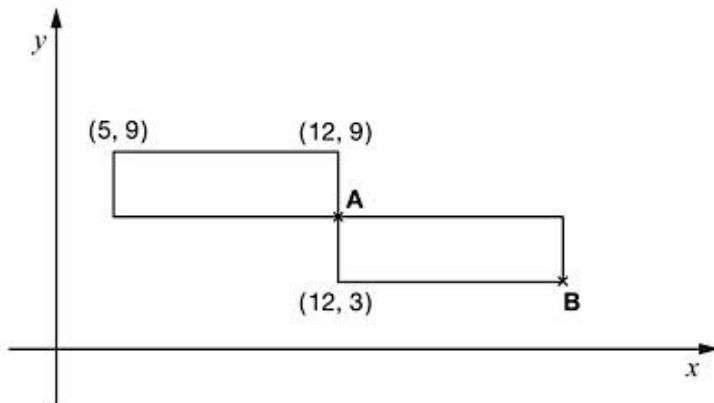
×	1	2	3	4	5
1					
2					
3					
4					
5					

In which two squares would 20 go?

.....

Question 20

This diagram shows two **identical** rectangles on coordinate axes.



Write the coordinates of point **A**.

A is (..... ,)

ANSWER KEY

Question 1

162

Question 2

First: $\div 10$ OR $\div 10$ OR $/10$ OR $/ 10$ OR divide by 10 OR divide 10 OR divide OR \div
 Then: -10 OR $- 10$ OR $- 10$ OR -10 OR minus 10 OR take away 10 OR take 10 OR subtract 10

1m $\div 10 \longrightarrow - 10$

Question 3

56

Question 4

101

$$(999 - 99 + 9) \div 9 = (900 + 9) \div 9 = 909 \div 9 = 101.$$

Question 5

3

The calculations required to find the value of x are:

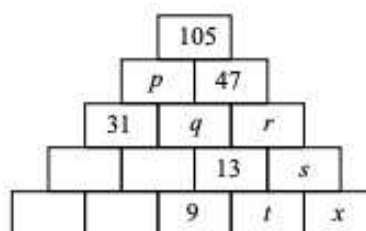
$$p = 105 - 47 = 58; q = p - 31 = 58 - 31 = 27;$$

$$r = 47 - q = 47 - 27 = 20;$$

$$s = r - 13 = 20 - 13 = 7; t = 13 - 9 = 4;$$

$$x = s - t = 7 - 4 = 3.$$

(Note that the problem may be solved without finding the values of four of the numbers in the pyramid. Finding these is left as an exercise for the reader.)



Question 6

add 326 OR +326 OR + 326 OR add one more 326 OR add on 326 OR [add OR +] AND 326

Question 7

$$\text{First} = \frac{3}{8}, \text{Last} = 2\frac{7}{8}$$

Question 8

0.993

Question 9

$$\frac{3}{5} = 0.6$$

$$\frac{3}{100} = 0.03$$

$$\frac{3}{50} = 0.06$$

9	Fractions connected correctly to decimals as shown:	1m	

Question 10

9:25 OR 9:25am OR [9 AND 25 AND am]OR [9 AND 25]

4b	9:25 am	1m
-----------	---------	-----------

Question 11

1	5	9	13
---	---	---	----

12	1 5 9 13	1m	
-----------	----------	-----------	--

Question 12

$$\frac{1}{12}$$

Question 13

18:15 OR 6:15

11c	18:15	1m	The answer is a specific time (see page 5 for guidance). Accept 6:15
------------	-------	-----------	---

Question 14

3

5a	3	1m	
----	---	----	--

Question 15

£13

2m	£13
or	
1m	Shows the value 8
	or
	Shows or implies a complete correct method with not more than one computational error
	eg
U1	• $21 - (29 - 21)$
	• $29 - 21 = 7$ (error), $21 - 7 = 14$

Question 16 -7°C

13a	-7°C	1m	Do not accept 7=
-----	----------------------	----	------------------

Question 17 36° 324°

2m	Both values correct, ie 36 and 324, in either order.
or	
1m	One correct value
	or
	Both values sum to 360, but none are 0, 90 or 180

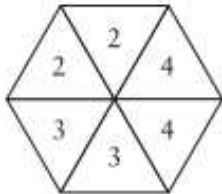
Question 18

1

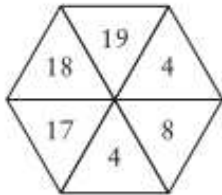
2m Shows exactly two fours, exactly two even numbers other than four, and any two odd numbers

eg

■



■



or

1m Shows exactly two fours

or

Shows exactly four even numbers, even if the other two entries are left blank

Question 19

4 OR [5] AND [4]

5 OR [4] AND [5]

4	Grid completed as shown:	1m	Accept alternative unambiguous indications, eg 20 written only in the correct squares.																																				
	<table border="1" style="border-collapse: collapse; text-align: center;"> <tr> <td>x</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td></td> <td></td> <td></td> <td></td> <td>✓</td> </tr> <tr> <td>5</td> <td></td> <td></td> <td></td> <td>✓</td> <td></td> </tr> </table>	x	1	2	3	4	5	1						2						3						4					✓	5				✓			
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4					✓																																		
5				✓																																			

Question 20

(12, 6)

20a:	A is (12, 6)	1m	Coordinates must be given in the correct order.
-------------	--------------	-----------	---

Paper Notes: 11+ Maths Question Paper (11+ Maths Past Paper (2026))

Compiled by [SATs-Papers.co.uk](https://www.SATs-Papers.co.uk) to help you get the most from this paper.

Overview

This is the **Year 7 Mathematics Entrance Examination** published by **Sir William Perkins's School**, a sample paper for the **September 2026** intake. It is designed for students preparing for **11+ entry** to this independent school and tests a broad range of mathematical skills appropriate for pupils at the end of Year 6.

The paper is divided into two parts: **Part 1 – General Skills** and **Part 2 – Problem Solving**. Students are given **one hour** to complete the entire examination, with advice to spend approximately **30 minutes on each part**. Questions span arithmetic, number sequences, fractions, decimals, time calculations, basic data handling, geometry, probability, and coordinate work.

This sample paper allows prospective pupils and their families to familiarise themselves with the style, layout, and difficulty level of the actual entrance test. Alongside the questions, an **answer key** is provided in the document, which includes acceptable answer formats and some brief guidance on alternative correct responses, making it useful for self-assessment and independent revision.

How this paper is organised

The paper comprises **20 questions** in total, presented across two parts. **Part 1 – General Skills** focuses on fundamental mathematical operations and straightforward applications, while **Part 2 – Problem Solving** is likely to demand more multi-step reasoning and interpretation, though the full problem-solving section is not shown in the extract provided here.

Students must complete all questions within **60 minutes**, and they are explicitly told to show all working clearly because **marks may be awarded for methods**, not just final answers. The instructions also encourage candidates to skip difficult questions and return to them later, a sensible exam strategy for managing time effectively.

The accompanying answer key lists correct answers and acceptable variations in notation (for example, alternative ways to express division or time). Some questions, such as the pyramid puzzle (Question 5), include brief working notes in the mark scheme to clarify the logic behind the correct answer, which is helpful for revision purposes.

Topics covered

- Whole number division with three-digit dividends (e.g. $486 \div 3$)
- Number chains requiring inverse operations: choosing division and subtraction operations to connect numbers
- Order of operations (BIDMAS/BODMAS) with brackets, addition, and division (e.g. $50 + (36 \div 6)$)
- Multi-step arithmetic with brackets and large numbers: $(999 - 99 + 9) \div 9$
- Additive pyramid puzzles requiring logical deduction of missing values
- Using known division facts to calculate related multiplication products (e.g. using $5,542 \div 17 = 326$ to find 18×326)
- Number sequences with fractions: identifying common differences and finding missing terms (mixed numbers and improper fractions)
- Addition of decimals to make 1 (complementary decimal pairs)
- Converting common fractions to decimals ($3/10$, $3/5$, $3/100$, $3/50$) and matching them accurately
- Time calculations with 12-hour and 24-hour clock formats, including adding durations to given start times
- Reading and interpreting frequency tables to compare data (favourite animals survey)
- Solving two-equation linear problems using simultaneous reasoning (jumper and shirt prices)
- Reading negative temperature scales and identifying marked values below zero
- Calculating sector angles in pie charts from given frequencies (e.g. 6 out of 60 pupils)
- Probability with equally likely outcomes on an eight-section spinner
- Identifying products in a multiplication grid and locating cells for a given result
- Coordinates of vertices on a Cartesian plane using identical rectangles and symmetry clues

How to use this paper for revision

- Practise **multi-step arithmetic** problems daily, ensuring you apply the correct order of operations without skipping brackets.
- Work on **fraction-to-decimal conversions** for common denominators (halves, quarters, fifths, tenths, hundredths) until they become automatic.
- Strengthen your **time calculation** skills by solving real-world problems involving both 12-hour and 24-hour formats, especially adding and subtracting minutes across the hour boundary.
- Familiarise yourself with **negative numbers** on number lines and temperature scales, understanding how to count backwards through zero confidently.
- Revise **probability** basics: total outcomes, favourable outcomes, and simplifying fractions to their lowest terms.
- Get comfortable with **coordinate geometry** by plotting and reading points accurately on squared paper, and recognising symmetry and translation patterns.
- Learn to **show your working** even for questions that seem simple, as marks are often awarded for clear method steps, not just the final answer.

Common mistakes to avoid

- Forgetting to apply **brackets first** in order-of-operations questions, leading to incorrect intermediate answers (e.g. adding before dividing in $50 + (36 \div 6)$).
- Misreading **number chains** and choosing operations in the wrong order, or failing to check that the output of the first operation feeds correctly into the second.
- Confusing **24-hour and 12-hour time** formats when adding durations, or making errors when crossing from one hour to the next (e.g. $17:25 + 50$ minutes).
- Writing decimal complements incorrectly, for example giving 0.93 instead of 0.993 when asked what adds to 0.007 to make 1.
- Calculating **pie chart angles** by dividing the wrong way round, or forgetting to multiply the fraction by 360° .
- Giving probability as a count rather than a fraction (e.g. writing '4' instead of $\frac{4}{8}$ or $\frac{1}{2}$ for even outcomes on the spinner).

Exam technique

Start by reading through the entire paper quickly to identify questions you can answer immediately, then tackle those first to build confidence and secure easy marks. The

instruction to spend **30 minutes per part** is a useful guide, but adapt your timing if you find one section easier than the other.

Always **show your working** in the space provided, even if you can do the calculation mentally. The mark scheme awards method marks, so a clear step-by-step approach can earn you partial credit even if your final answer contains a minor arithmetic slip. Use neat layout and label intermediate results where helpful.

If you get stuck on a question (such as the pyramid puzzle or the coordinate geometry problem), move on and return to it later with fresh eyes. Spending too long on one tricky question can cost you marks elsewhere. In the final five minutes, check your answers for silly errors, especially with units (degrees, pounds, times), and ensure you have attempted every question, as there is no penalty for wrong answers in this format.

What to revise alongside this paper

To build on this paper, revise **long multiplication and division** with larger numbers, including decimals, to strengthen your fluency with multi-digit calculations. Work through problems involving **ratio and proportion**, which often appear alongside fractions and percentages in 11+ exams, and practise converting between all three forms.

Explore **algebraic thinking** by solving simple equations and using letters to represent unknown values in puzzles, as this underpins many problem-solving questions at this level. Strengthen your understanding of **geometric properties**, including angles in polygons, symmetry, and transformations such as translation and reflection, all of which are common in entrance assessments.

Finally, look at **data handling** topics beyond this paper: bar charts, line graphs, mean and mode, and interpreting more complex tables. These skills are frequently tested in 11+ maths and will prepare you for the problem-solving section, where questions often require you to extract and manipulate information from diagrams and charts.

Key terms

BIDMAS / BODMAS, Inverse operations, Order of operations, Mixed number, Improper fraction, Complement (to 1), Decimal places, Equivalent fraction, Sector angle, Pie chart, Probability, Coordinates, Cartesian plane, Negative number, 24-hour clock

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SIR WILLIAM PERKINS'S SCHOOL

Year 7 Mathematics Entrance Examination

Sample Paper

September 2026 Intake

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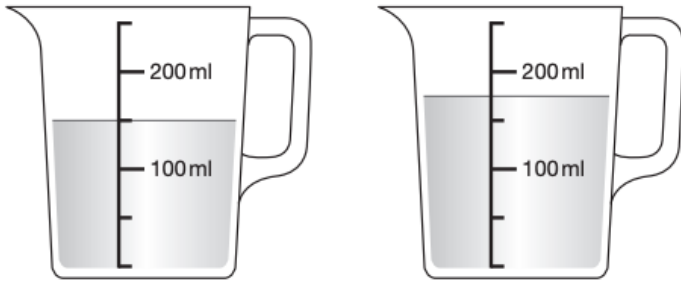
Name:

School:

Problem Solving

Question 1

Stefan has 600 millilitres of water in a bottle.
He pours some of the water into two measuring jugs as shown.

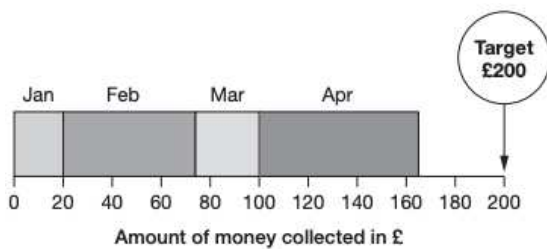


How many millilitres of water are left in Stefan's bottle?

..... ml

Question 2

A school plans to collect £200 between January and May.
This chart shows how much they collected by the end of April.

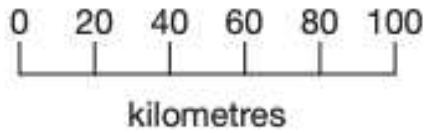


How much money did they collect in February and March **altogether**?

£

Question 3

On a map, 1 cm represents 20 km.



The distance between two cities is **250 km**.

On the map, what is the distance between the two cities?

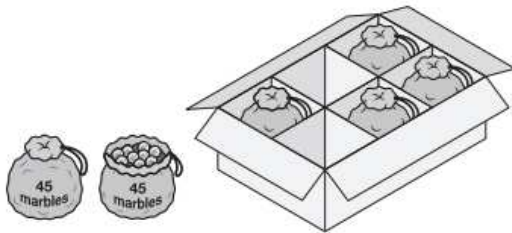
..... cm

Question 4

A toy shop orders 11 boxes of marbles.

Each box contains 6 bags of marbles.

Each bag contains 45 marbles.



How many **marbles** does the shop order in total?

.....

Question 5



The table shows the cost of coach tickets to different cities.

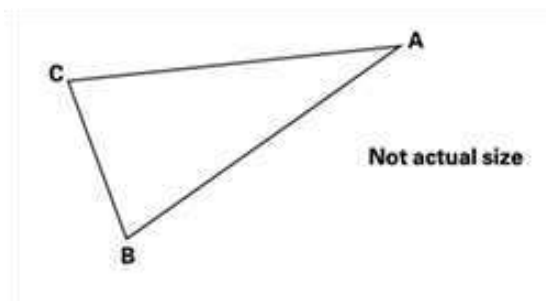
	Hull	York	Leeds
Adult Single	£12.50	£15.60	£10.25
Adult Return	£23.75	£28.50	£19.30
Child Single	£8.50	£10.80	£8.25
Child Return	£14.90	£17.90	£14.75

How much **more** does it cost for two adults to make a **single** journey to Hull than to Leeds?

£

Question 6

Triangle **ABC** is isosceles and has a perimeter of 20 centimetres.
Side **AB** and **AC** are each twice as long as **BC**.

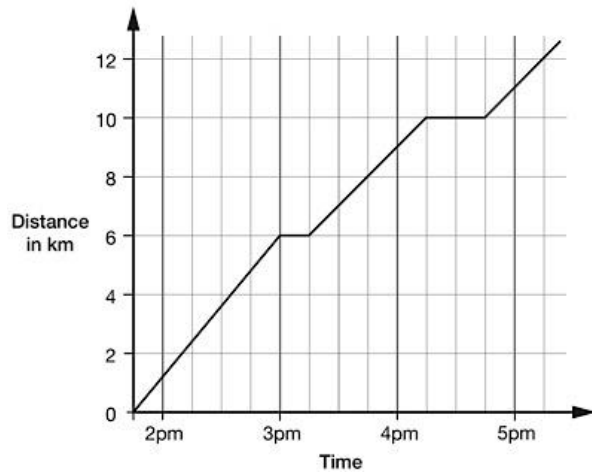


Calculate the length of the side **BC**. Do not use a ruler.

..... cm

Question 7

This graph shows the distance Alfie and Chen walked in an afternoon. They started at 1:45pm and had two breaks.



How many kilometres did they walk **between** the first and second breaks?

..... km

Question 8

Adam chooses the colours for a new team shirt.
The shirt has two colours.



There are four colours to choose from: yellow, blue, white and red.
Write the two missing combinations.

The shirt could be:

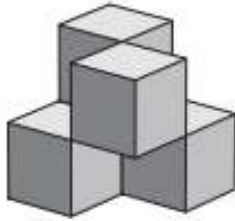
- yellow and blue
- yellow and white
- yellow and red
- blue and white.

.....

.....

Question 9

The diagram shows a shape made from four $3\text{ cm} \times 3\text{ cm} \times 3\text{ cm}$ wooden cubes joined by their edges.

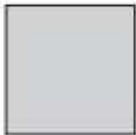


What, in cm^2 , is the surface area of the shape?

..... cm^2

Question 10

The diagram shows a square with a **perimeter** of 12 cm.



Not drawn
accurately

Six of these squares fit together to make a rectangle.



Not drawn
accurately

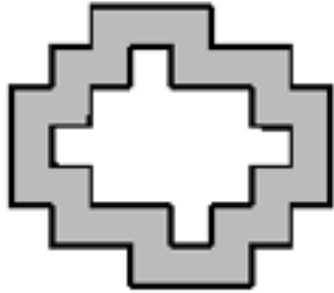
What is the **area** of the **rectangle**?

..... cm^2

Question 11

In the diagram shown, all the angles are right angles and all the sides are of length 1 unit, 2 units or 3 units.

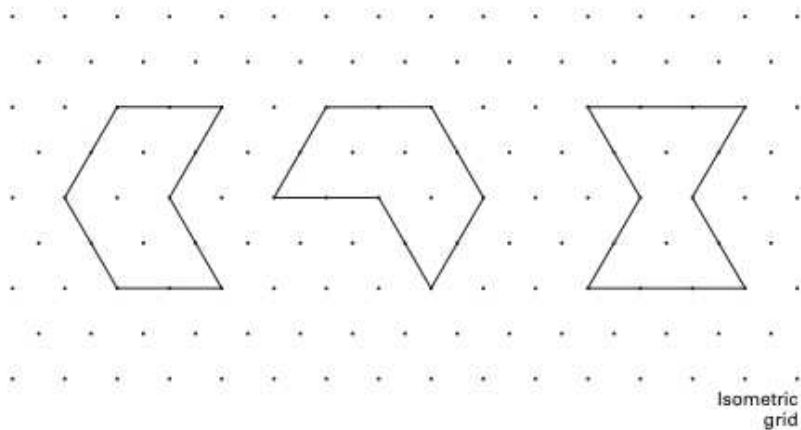
What, in square units, is the area of the shaded region?



..... $units^2$

Question 12

Look at these shapes.

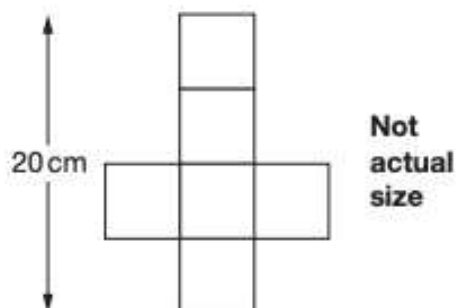


Explain why the shapes are **hexagons**.

.....

Question 13

This is the net of a cube.

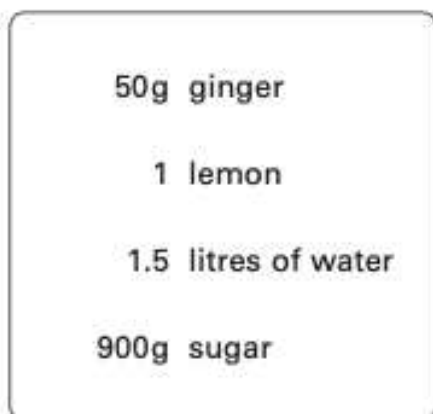


What is the **volume** of the cube?

..... cm³

Question 14

Here are the ingredients for a cordial used to make a drink.



The finished drink should be 1 part cordial and 2 parts water.

Jenny puts 100ml of cordial in a glass.

How much water should she put with it?

..... ml

Question 15

In this subtraction, P, Q, R, S and T represent single digits.

What is the value of $P + Q + R + S + T$?

$$\begin{array}{r}
 7 \quad Q \quad 2 \quad S \quad T \\
 - P \quad 3 \quad R \quad 9 \quad 6 \\
 \hline
 2 \quad 2 \quad 2 \quad 2 \quad 2 \\
 \hline
 \end{array}$$

.....

Question 16

Each of these bags contains **£1.60**.

Each bag contains only one type of coin.



Complete this table to show how many coins are in each bag.

One has been done for you.

Type of coin	Number of coins
1p	160
10p	<input type="text"/>
20p	<input type="text"/>

Question 17


15% of the people walk 5 km or less.

40% of the people walk 8 km or more.

What percentage of the people walk between 5 km and 8 km?

..... %

Question 18

One day, each driver entering a car park paid exactly £1.50

Car park	
Pay exactly £1.50 to enter	
Machine accepts only £1 coins and 50p coins	

Here is what was put into the machine that day:

Number of £1 coins **136**

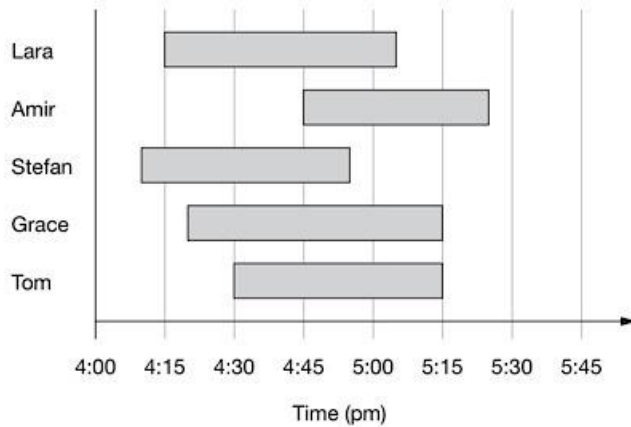
Number of 50p coins **208**

On that day, what percentage of drivers paid with **three 50p coins**?

..... %

Question 19

This chart shows the times when 5 children were at a swimming pool one afternoon.

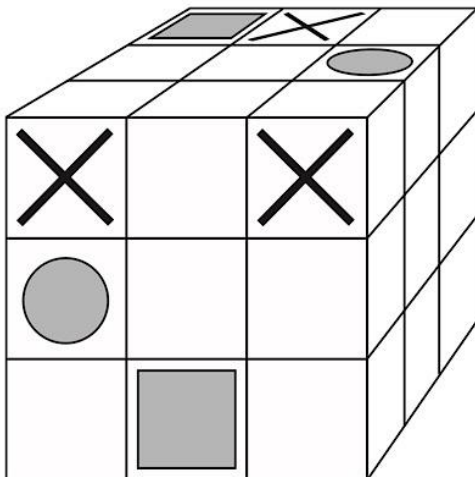


Who was the next person to arrive after Stefan?

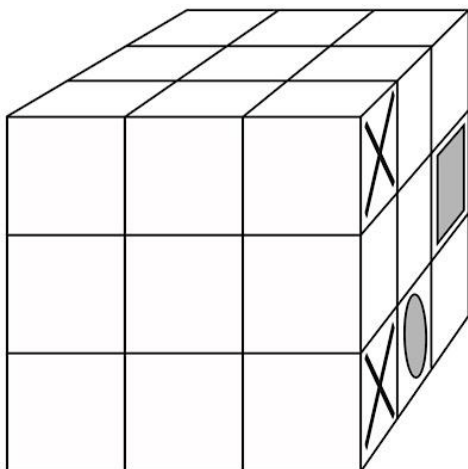
.....

Question 20

Cubes have been stuck together to make this block.
The block has a pattern on two faces.



The block is turned to the position below.
 Draw the missing parts of the pattern on it.

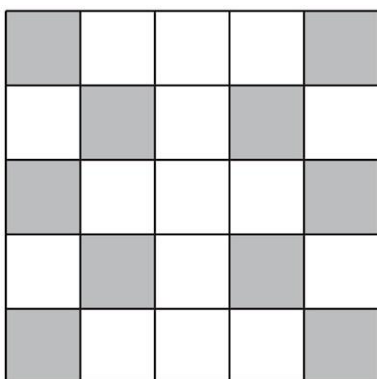


Each box below represents a section on the face of the cube. Write either Blank, Circle, Cross or Square in each box. One has been done for you.

Blank		

Question 21

Here is a pattern on a grid.



What **percentage** of the grid is shaded?

..... %

Question 22

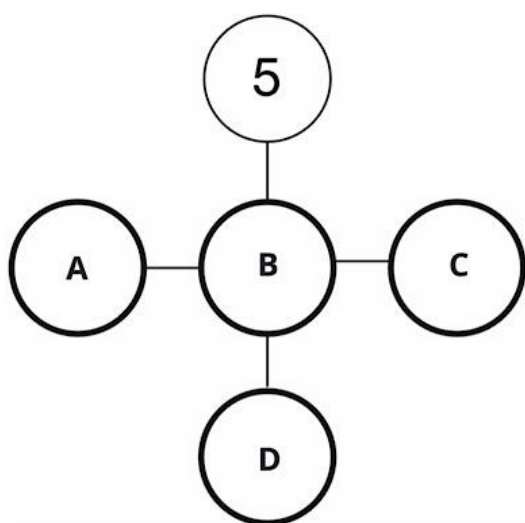
Here are five number discs.



Look at the cross pattern below.

Use each disc **once** so that the total across and the total down is 13.

One has been done for you.



****A is less than C****

A

B

C

D

Mark scheme

Question 1

275ml

Question 2

£80

Question 3

12.5cm

Question 4

2970

Question 5

£4.50

14b	£4.50	1m	<p>Accept £4.50p OR £4.50</p> <p>Do not accept £450 OR £450p OR £4.5</p> <p><i>If the final '0' is missing from both answers, ie answers given are £64.3 and £4.5 respectively, award ONE mark only in 14b.</i></p>
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Question 6

4cm

21	<p>Award TWO marks for the correct answer of 4cm.</p> <p>If the answer is incorrect award ONE mark for evidence of appropriate working, eg</p> <p>$1 + 2 + 2 = 5$</p> <p>$20 \div 5 = \text{wrong answer}$</p>	Up to 2m
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Question 7

4km

17a	4km	1m	
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Question 8

blue and red OR red and blue OR white and red OR red and white

red and white OR blue and red OR red and blue OR white and red

Question 9216cm²

Each of the cubes has six faces all of which are exposed. Therefore the four cubes have a total of 24 faces. Each face measures 3 cm by 3 cm and so has an area of 9 cm². Therefore the surface area of the shape is $(24 \times 9) \text{ cm}^2 = 216 \text{ cm}^2$.

Question 1054cm²

1m	Gives a correct value for the area of the rectangle eg <ul style="list-style-type: none"> ▪ 54 ▪ 5400
(U1)	
1m	Shows the correct unit for their area eg <ul style="list-style-type: none"> ▪ cm² [with 54] ▪ mm² [with 5400]

Question 1126units²

Divide the whole figure into horizontal strips of height 1 unit: its area is $(3 + 6 + 8 + 8 + 8 + 6 + 3) \text{ units}^2 = 42 \text{ units}^2$. Similarly, the unshaded area is $(1 + 4 + 6 + 4 + 1) \text{ units}^2 = 16 \text{ units}^2$. So the shaded area is 26 units².

Alternative solution: notice that if the inner polygon is moved a little, the answer remains the same – because it is just the difference between the areas of the two polygons. So, although we are not told it, we may assume that the inner one is so positioned that the outer shaded area can be split neatly into 1 by 1 squares – and there are 26 of these.

Question 12**6 sides OR six sides OR six vertices OR six corners**

1m || Gives a correct explanation
 eg
 ■ Each shape has six sides
 ■ They all have six corners
 ■ 6 sides

Question 13125cm³**Question 14**

200ml

1m || 200

Question 15

29

As $7Q2ST - P3R96 = 22222$, it follows that $7Q2ST = P3R96 + 22222$.
 Looking at the units column: $2 + 6 = T$, so $T = 8$. Looking at the tens column, as $2 + 9 = 11$, we deduce that $S = 1$ and that 1 is carried to the hundreds column. Looking at the hundreds column: the carry of 1 + 2 + R must equal 12 since the sum has 2 in the hundreds column. So $R = 9$ and there is a carry of 1 to the thousands column. Looking at this column: the carry of 1 + 2 + 3 = Q , so $Q = 6$. Finally, since there is no carry to the next column, $2 + P = 7$, so $P = 5$. Therefore the calculation is $76218 - 53996 = 22222$ and $P + Q + R + S + T = 5 + 6 + 9 + 1 + 8 = 29$.

Question 16

Type of coin	Number of coins
1p	160
10p	16
20p	8

8	Table completed as shown:	1m	Both numbers must be correct for the award of the mark.
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Type of coin	Number of coins
1p	160
10p	16
20p	8

Question 17

45%

10b	45%	1m	
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Question 18

15%

3m	15
<i>or</i>	
2m	Shows the values 24 and 160
	<i>or</i>
	Shows a correct method with not more than one computational or rounding error
	eg
	<ul style="list-style-type: none"> ■ $(208 - 136) \div 3 \div (240 \div 1.50)$ ■ $208 - 136 = 72,$ $72 \div 3 = 26$ (<i>error</i>), $26 + 136 = 162$ $26 \div 162 \times 100 = 16.25$
<i>or</i>	
1m	Shows the value 24 or 160
	<i>or</i>
	Shows a correct method with not more than two computational or rounding errors
	eg
	<ul style="list-style-type: none"> ■ $208 - 136 = 62$ (<i>error</i>), $62 \div 3 = 21$ (<i>premature rounding</i>), $21 \div 160 \times 100 = 13.125$

Question 19

Lara

7a	Lara	1m	Accept unambiguous abbreviations or recognisable misspellings.
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Question 20

Blank	Circle	Blank
Cross	Blank	Blank
Square	Blank	Blank

19	Award TWO marks for the diagram completed as shown:	Up to 2m	Accept slight inaccuracies in drawing provided the intention is clear. Circle and square need not be shaded.
			
If the answer is incorrect, award ONE mark for two shapes correct and no more than one incorrect.			

Question 21

40%

21	40%	1m	Do not accept equivalent fractions or decimals.
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Question 22

A3

B1

C9

D7

14	Diagram completed so that totals across and down are both 13 OR both 17, eg:	1m	
			

Paper Notes: 11+ Maths Question Paper (11+ Maths Past Paper (2026))

Compiled by [SATs-Papers.co.uk](https://www.SATs-Papers.co.uk) to help you get the most from this paper.

Overview

This is the **Sir William Perkins's School Year 7 Mathematics Entrance Examination**, a sample paper for the **September 2026 intake**. It is an **11+ internal entrance exam** designed to assess candidates applying for Year 7 entry at this independent girls' school. The paper tests a broad range of mathematical reasoning and problem-solving skills in a timed, written format.

The paper is divided into **two parts**: Part 1 covers General Skills and Part 2 focuses on Problem Solving. Candidates are given **one hour** to complete both sections, with the advice to spend approximately **30 minutes on each part**. The questions are free-response, requiring written answers and working out rather than multiple-choice selection. Marks are awarded for methods as well as correct answers, which encourages students to show their reasoning clearly.

This sample paper is particularly useful for students preparing for **independent school 11+ maths exams**, as it reflects the style, difficulty, and breadth of content typical of selective entrance assessments. The Problem Solving section includes 22 questions covering topics from measurement and data interpretation to algebra, geometry, and percentages, offering a realistic preview of the actual entrance examination.

How this paper is organised

The paper is organised into **two main sections**: General Skills and Problem Solving. Although only the Problem Solving section is visible in the extracted text, it is clear that both parts are designed to be attempted within the same **one-hour exam session**, with a suggested **30 minutes per section**. The Problem Solving section alone contains **22 questions**, numbered sequentially and requiring written answers in the spaces provided.

Questions vary in complexity and mark value. Some are straightforward one-step calculations (for example, Question 1 on millilitres remaining), while others demand multi-step reasoning or pattern recognition (such as Question 11 on area of a shaded region or Question 22 on arranging number discs). The paper includes diagrams, charts, and tables to test interpretation skills alongside computation. A **mark scheme** is provided at the end of the document, giving correct answers and, for some questions, guidance on acceptable alternative methods or partial credit.

The layout is clean and spacious, with each question printed on a separate page or half-page to allow room for working. Students are explicitly instructed to **show all working clearly**, as marks may be awarded for method even if the final answer is incorrect. This structure rewards careful mathematical thinking and penalises careless omissions of steps.

Topics covered

- Volume and capacity: millilitre calculations and subtraction in real-world contexts (Stefan's water bottle)
- Data interpretation from bar charts: reading cumulative totals and calculating differences (school fundraising chart)
- Map scales and proportion: converting real distances to map distances using a given scale ratio (1 cm to 20 km)
- Multi-step multiplication: calculating totals involving nested groups (boxes, bags, and marbles)
- Money problems and price comparison: using tables of ticket prices to calculate cost differences (coach fares to Hull, York, and Leeds)
- Properties of isosceles triangles and perimeter: forming and solving simple equations to find unknown side lengths
- Distance-time graph interpretation: reading cumulative distance walked and identifying intervals between breaks
- Combinatorics and systematic listing: identifying missing two-colour combinations from a set of four colours
- Surface area of 3D composite shapes: counting exposed faces of cubes joined by edges
- Area of rectangles composed of smaller squares: working with perimeter to find side length, then calculating area
- Area of irregular rectilinear shapes: dividing a figure into rectangles or counting unit squares to find shaded area
- Definitions of polygons: explaining why shapes with six sides are hexagons (recognising properties)
- Volume of a cube from a net: identifying the side length from a net diagram and cubing it
- Ratio and proportion in recipes: applying a 1:2 cordial-to-water ratio to find quantities
- Cryptarithmic and digit puzzles: solving a subtraction problem where letters represent single digits
- Inverse operations with money and coins: calculating the number of 1p, 10p, and 20p coins needed to make £1.60
- Percentage problems involving complementary groups: finding the percentage of people in a middle range when given two boundary percentages
- Percentages from raw data: determining what proportion of drivers paid with three 50p coins from total coin counts

- Time chart interpretation: reading a horizontal bar chart showing overlapping time intervals (swimming pool arrival and departure)
- Spatial reasoning with cube patterns: rotating a 3D block and completing a pattern on hidden faces
- Percentage of area shaded in a grid: counting shaded and total squares to express as a percentage
- Number puzzles with constraints: placing digits in a cross pattern so rows and columns sum to 13, with an additional inequality ($A < C$)

How to use this paper for revision

- Practise reading questions carefully and identifying what is being asked before you start calculating; many questions have more than one step.
- Draw diagrams or sketches for geometry and spatial reasoning questions, even if the question provides one; annotating the diagram helps you think through the problem.
- Learn to recognise common mathematical language: 'altogether' usually means add, 'difference' or 'more than' signals subtraction, 'each' often means multiply.
- Revise units of measurement and conversion between them (millilitres to litres, centimetres to metres, pence to pounds); unit errors are easy marks to lose.
- Practise interpreting bar charts, line graphs, and tables under timed conditions; data interpretation questions reward accurate reading and simple arithmetic.
- Memorise key formulas for perimeter, area, and volume of common shapes (rectangles, triangles, cubes); you will not be given a formula sheet.
- Work through ratio and proportion problems systematically; set up the ratio clearly and scale up or down as required, checking your answer makes sense in context.

Common mistakes to avoid

- Forgetting to subtract or add all parts of a multi-step problem; for example, in Question 1, students might subtract only one jug's volume instead of both.
- Misreading scales on charts or graphs, especially when the scale does not start at zero or uses intervals of 5, 10, or 20 rather than single units.
- Confusing perimeter with area or mixing up formulas; always check whether you are asked for a length (perimeter, side) or a space (area, volume).
- Failing to show working and losing method marks; even if your final answer is wrong, clear steps can earn partial credit.
- Rushing through ratio and proportion questions and setting up the wrong ratio; double-check which quantity is which before scaling.
- Not simplifying or converting units in the final answer; for example, giving an answer in pence when the question asks for pounds, or vice versa.

Exam technique

Start by skimming through the entire Problem Solving section to identify questions that look straightforward and can be answered quickly; these are your **quick wins** and should be attempted first to bank marks early. Then return to the harder, multi-step questions, giving each one the time it deserves. If a question stumps you after a minute or two, move on and return to it later; you cannot afford to lose time on a single puzzle when there are 22 questions to complete in 30 minutes.

Always **show your working** clearly in the space provided, even for questions where the method seems obvious. The mark scheme rewards partial credit for correct methods, so a visible calculation can earn you marks even if you make an arithmetic slip at the end. Write your final answer clearly on the line provided and make sure it includes the correct unit (ml, cm, £, %, etc.). Cross out mistakes neatly rather than scribbling them out; examiners need to be able to follow your thinking.

Manage your time by keeping an eye on the clock and aiming to spend no more than **1.5 to 2 minutes per question** on average. If you finish early, use the remaining time to check your answers, particularly for questions involving subtraction, division, or reading from charts, where small errors are common. Re-read the question to confirm you have answered what was asked, not something slightly different.

What to revise alongside this paper

Students preparing for this paper should also revise **fractions, decimals, and percentages** and practise converting between them fluently, as these skills underpin

many of the problem-solving questions. Work on **mental arithmetic** and times tables up to 12×12 to speed up multi-step calculations. Review the properties of **2D and 3D shapes**, including triangles, quadrilaterals, and prisms, and practise calculating perimeter, area, and volume without a calculator.

Beyond the content of this paper, students should look at **more challenging ratio and proportion problems**, including those involving three quantities or requiring simplification of ratios. Practise **algebraic thinking** by solving simple equations and puzzles where letters stand for unknown numbers; this prepares you for cryptarithmic questions like Question 15. Finally, work on **spatial reasoning** and visualisation by attempting problems involving nets, rotations, and reflections of 3D shapes.

For students aiming for top independent schools, it is worth extending into **logic puzzles and combinatorics** (systematic counting, arrangements, and permutations), as these topics appear frequently in 11+ problem-solving sections. Practising under timed conditions with a variety of past papers will build confidence and improve exam technique, particularly the ability to switch quickly between different question types.

Key terms

Millilitres, Perimeter, Area, Volume, Isosceles triangle, Surface area, Scale (maps), Ratio, Proportion, Percentage, Combinations, Rectilinear shape, Net (of a solid), Distance-time graph, Hexagon

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