



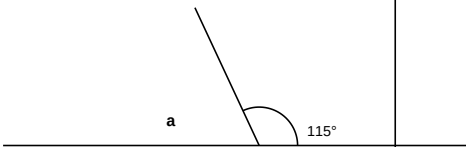
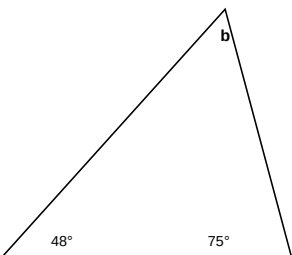
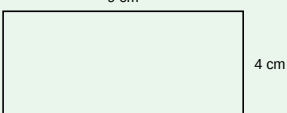
MARK SCHEME

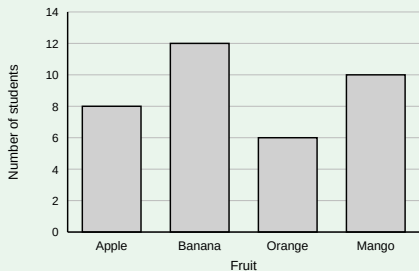
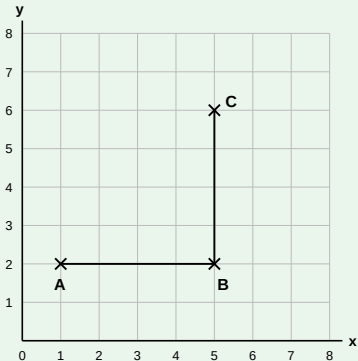
Lower Secondary - Stage 7 - Paper 1 (non-calculator) - 50 marks

Marking principles

- **B** = independent mark for a correct answer or statement. **M** = method mark. **A** = accuracy mark, given only if the method mark is earned. **FT** = follow through from an earlier wrong answer. **SC** = special case.
- Accept equivalent answers (fractions, decimals, percentages) unless the question asks for a specific form.
- Ignore extra working that does not contradict a correct answer. Marks are not lost for missing units unless stated.
- If the answer line and the working disagree, the answer line is marked.

Q	Question	Answer	Marks	Guide (partial credit and guidance)
1	Write down the next number in this sequence. 3 8 13 18 	23	B1	The sequence goes up by 5 each time: $18 + 5$.
2(a)	Write 0.07 as a fraction.	$\frac{7}{100}$	B1	Accept equivalent fractions e.g. $\frac{14}{200}$.
2(b)	Round 4.762 to 1 decimal place.	4.8	B1	The digit after the first decimal place is 6, so round 4.7 up to 4.8.
3	Calculate $-8 + 5$	-3	B1	Accept -3 or a hyphen used as the minus sign: -3.
4(a)	Calculate $\frac{3}{4} + \frac{1}{8}$	$\frac{7}{8}$	B1	$\frac{3}{4} = \frac{6}{8}$, then $\frac{6}{8} + \frac{1}{8}$. Accept 0.875.
4(b)	Calculate $\frac{2}{5}$ of 35	14	B1	$35 \div 5 = 7$, then $7 \times 2 = 14$.
4(c)	Write $\frac{12}{30}$ in its simplest form.	$\frac{2}{5}$	B1	Divide top and bottom by 6. Accept 0.4 or 40%. Must be fully simplified.
5	Write these numbers in order of size. Start with the smallest. 0.4 0.35 0.409 0.04	0.04 0.35 0.4 0.409	B2	B1 for all four in reverse order, or one adjacent pair swapped. Tip: write each as thousandths: 0.400, 0.350, 0.409, 0.040.
6(a)	Write down all the factors of 18.	1, 2, 3, 6, 9, 18	B2	B1 for five correct factors and no incorrect ones, or all six with one extra number.
6(b)	Here are five numbers: 21 23 27 29 33. Write down the two prime numbers.	23 and 29	B1	Both needed, either order. 21, 27 and 33 are multiples of 3.
7(a)	Work out 6^2	36	B1	$6 \times 6 = 36$.
7(b)	Work out the square root of 49.	7	B1	Accept $\sqrt{49} = 7$. Reject ± 7 as the only answer.

Q	Question	Answer	Marks	Guide (partial credit and guidance)
8(a)	Simplify $5a + 3a - 2a$	$6a$	B1	$5 + 3 - 2 = 6$ lots of a .
8(b)	Work out the value of $3x + 4$ when $x = 5$	19	B1	$3 \times 5 = 15$, then $15 + 4 = 19$.
9(a)	Solve $x + 9 = 15$	$x = 6$	B1	Accept 6. $15 - 9 = 6$.
9(b)	Solve $2n - 3 = 11$	$n = 7$	M1 A1	M1 for $2n = 14$ or $11 + 3 = 14$ or for dividing every term by 2 correctly. A1 for $n = 7$.
10	Write an expression for: <i>multiply n by 4, then subtract 5</i>	$4n - 5$	B1	Accept $4 \times n - 5$ or $n \times 4 - 5$.
11	The diagrams are not drawn accurately.			
11(a)	Work out the size of angle a . 	65°	B1	Angles on a straight line add up to 180° : $180 - 115 = 65$. Accept 65.
11(b)	Work out the size of angle b . 	57°	M1 A1	M1 for $48 + 75 = 123$ or $180 - 48 - 75$. Angles in a triangle add up to 180° .
12	A rectangle measures 9 cm by 4 cm. 			
12(a)	Work out the perimeter of the rectangle.	26 cm	B1	$9 + 4 + 9 + 4 = 26$. Units not required if the number is correct.
12(b)	Work out the area of the rectangle.	36 cm^2	B1	$9 \times 4 = 36$. Accept 36 without units.
12(c)	A square has a perimeter of 28 cm. Work out the length of one side of the square.	7 cm	B1	$28 \div 4 = 7$.

Q	Question	Answer	Marks	Guide (partial credit and guidance)
13	Some students each chose their favourite fruit. The bar chart shows the results. 			
13(a)	How many students chose banana?	12	B1	Read the height of the banana bar.
13(b)	How many students took part in the survey?	36	B1	$8 + 12 + 6 + 10 = 36$.
13(c)	What fraction of the students chose apple? Give your answer in its simplest form.	$\frac{2}{9}$	M1 A1	M1 for $\frac{8}{36}$ or equivalent, FT their answer to part (b). A1 for $\frac{2}{9}$.
14	Here are five numbers. 7 2 9 2 10			
14(a)	Work out the median.	7	B1	Ordered list: 2, 2, 7, 9, 10. The middle value is 7.
14(b)	Work out the mean.	6	B1	$7 + 2 + 9 + 2 + 10 = 30$, then $30 \div 5 = 6$.
14(c)	Work out the range.	8	B1	$10 - 2 = 8$.
15(a)	4 pens cost \$6. Work out the cost of 10 pens.	\$15	M1 A1	M1 for $6 \div 4 = 1.50$ or $10 \div 4 \times 6$ or 2.5×6 . Accept \$15.00.
15(b)	Share 40 sweets in the ratio 3 : 5.	15 and 25	M1 A1	M1 for $40 \div (3 + 5)$ or 5 seen. SC1 for 25 and 15 given in the wrong order.
16(a)	Write 35% as a decimal.	0.35	B1	$35 \div 100 = 0.35$.
16(b)	Work out 20% of 60.	12	B1	10% of 60 is 6, so 20% is 12.
16(c)	Write $\frac{3}{20}$ as a percentage.	15%	B1	Multiply top and bottom by 5 to get $\frac{15}{100}$.
17	A, B and C are three vertices of a square ABCD. 			

Q	Question	Answer	Marks	Guide (partial credit and guidance)
17(a)	Write down the coordinates of D.	(1, 6)	B1	D is directly above A and level with C.
17(b)	Write down the coordinates of the midpoint of AB.	(3, 2)	B1	Halfway between $x = 1$ and $x = 5$ is 3. The y value stays 2.
17(c)	Write down the number of lines of symmetry of a square.	4	B1	Two through opposite corners and two through the midpoints of opposite sides.
18	Sam buys 3 notebooks at \$2.40 each and 1 pen for \$1.85. He pays with a \$10 note. How much change does Sam get?	\$0.95	M1 M1 A1	M1 for $3 \times 2.40 = 7.20$. M1 for $7.20 + 1.85 = 9.05$. A1 for $10 - 9.05 = 0.95$. Accept 95 cents.
19	A film starts at 14:45. It lasts 1 hour 50 minutes. At what time does the film end?	16:35	M1 A1	M1 for 15:45 or 16:45 or 16:35 seen. Accept 4:35 pm; reject 4:35 on its own.
20	A bag contains 3 red counters, 5 blue counters and 2 green counters. Ali takes one counter from the bag without looking.			
20(a)	Write down the probability that the counter is blue.	$\frac{1}{2}$	B1	5 blue counters out of 10 in total. Accept $\frac{5}{10}$, 0.5 or 50%.
20(b)	Which colour is Ali least likely to take?	green	B1	There are only 2 green counters.
	Total		50	

Paper blueprint (generated alongside the paper)

Every question is tagged to a strand and topic so teachers can check coverage before printing.

Q	Strand	Topic	Marks
1	Number	Number sequences	1
2	Number	Decimals: fractions and rounding	2
3	Number	Negative numbers	1
4	Number	Fractions: add, fraction of an amount, simplify	3
5	Number	Ordering decimals	2
6	Number	Factors and prime numbers	3
7	Number	Square numbers and square roots	2
8	Algebra	Simplifying expressions and substitution	2
9	Algebra	Solving equations	3
10	Algebra	Writing expressions	1
11	Geometry and measure	Angles on a line and in a triangle	3
12	Geometry and measure	Perimeter and area	3
13	Statistics and probability	Bar charts and fractions of a total	4
14	Statistics and probability	Median, mean and range	3
15	Number	Proportion and ratio	4
16	Number	Percentages, decimals and fractions	3
17	Geometry and measure	Coordinates, midpoint, symmetry	3
18	Number	Money: multi-step problem	3
19	Geometry and measure	Time: duration and end time	2
20	Statistics and probability	Simple probability	2

Strand	Marks	% of paper
Number	24	48%
Algebra	6	12%
Geometry and measure	11	22%
Statistics and probability	9	18%
Total	50	100%