
MATHEMATICS

1112/01

Paper 1

April 2018

MARK SCHEME

Maximum Mark: 50

IMPORTANT NOTICE

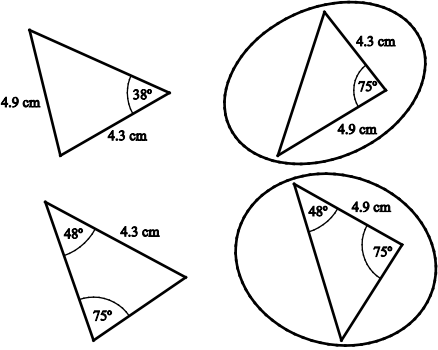
Mark Schemes have been issued on the basis of **one** copy per Assistant examiner and two copies per Team Leader.

This document consists of **13** printed pages and **1** blank pages.

Mark scheme annotations and abbreviations

M1	method mark
A1	accuracy mark
B1	independent mark
FT	follow through after error
dep	dependent
oe	or equivalent
cao	correct answer only
isw	ignore subsequent working
soi	seen or implied

Question	Answer	Marks	Further Information
1(a)	5	1	Allow +5
1(b)	$\frac{7}{8}$ oe	1	
2	Ticks Lily and shows correct values for comparison, e.g. 160 pages (Lily) 144 pages (Safia)	2	Do not accept Lily without an explanation.
	Correct method, e.g. 0.32×500 oe implied by 160 or 0.4×360 oe implied by 144	M1	
3	6	2	
	0.25 or 1500 seen.	B1	
4	A correct explanation relating to order of operations e.g. <ul style="list-style-type: none"> • Division should be done first • adding comes after dividing • Mike has done the calculations in the wrong order • $12 \div 4 = 3$, $3 + 8 = 11$ • He hasn't used BODMAS 	1	Do not accept <ul style="list-style-type: none"> • he hasn't calculated correctly • the correct answer is 11 (alone) But accept <ul style="list-style-type: none"> • Using BODMAS, the answer should be 11 • Accept other acronyms e.g. BIDMAS, PEMDAS

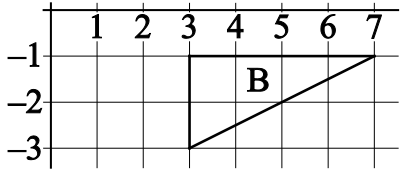
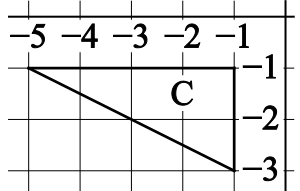
Question	Answer	Marks	Further Information																
5	 <p>one or two correct triangles ringed with no more than one incorrect triangle ringed.</p>	2 B1																	
6(a)	1.2	1																	
6(b)	250	1																	
7(a)	<table border="1" data-bbox="593 901 1142 1093"> <thead> <tr> <th></th> <th>Grade A, B or C</th> <th>Grade D, E or F</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Boys</td> <td>76</td> <td>64</td> <td>140</td> </tr> <tr> <td>Girls</td> <td>79</td> <td>61</td> <td>140</td> </tr> <tr> <td>Total</td> <td>155</td> <td>125</td> <td>280</td> </tr> </tbody> </table> <p>at least 4 correct entries.</p>		Grade A, B or C	Grade D, E or F	Total	Boys	76	64	140	Girls	79	61	140	Total	155	125	280	2 B1	
	Grade A, B or C	Grade D, E or F	Total																
Boys	76	64	140																
Girls	79	61	140																
Total	155	125	280																
7(b)	$\frac{61}{280}$	1																	

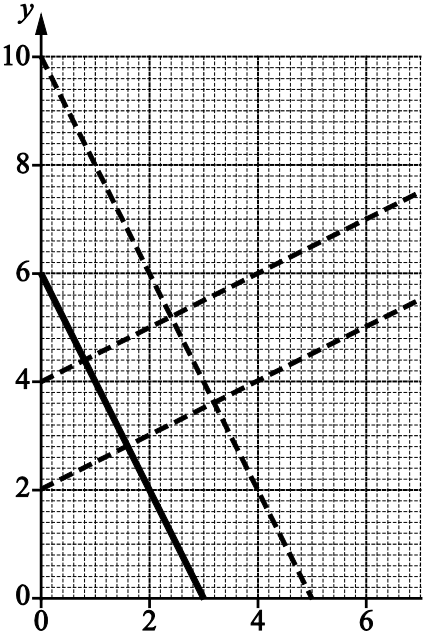
Question	Answer	Marks	Further Information
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8	$+$ <input type="checkbox"/> $3a$ <input type="checkbox"/> 4 <input type="checkbox"/> 7 <input type="checkbox"/> $7b$ <input checked="" type="checkbox"/>	1	Accept any unambiguous indication of the correct answer.
9	2 and 4 and 10 in correct order	2	
	2 correct answers.	B1	
10(a)	$2x(x - 3)$	2	Ignore attempts to “solve” or expand back out
	either of <ul style="list-style-type: none"> • $x(2x - 6)$ • $2(x^2 - 3x)$ 	M1	

Question	Answer	Marks	Further Information
10(b)	$(r =) \frac{h}{2} + 4$ or $(r =) \frac{h+8}{2}$	2	
	correct first step, e.g. <ul style="list-style-type: none"> • sight of $2r - 8$ • sight of $\frac{h}{2} = r - 4$ • sight of $2r = h + 8$ 	M1	
11	8	1	
12	4 km 6 km 12 km 16 km 22 km	1	Accept any unambiguous indication of the correct answer.
13	$\frac{7}{12}$	1	cao
14	$x^2 + 6x - 16$	2	
	at least 3 out of these 4 terms seen: x^2 , $8x$, $-2x$, -16 $+6x$ implies both $8x$ and $-2x$.	B1	

Question	Answer	Marks	Further Information
15(a)	Age of student <input type="checkbox"/> Gender of student <input checked="" type="checkbox"/> Time spent doing sport each week <input checked="" type="checkbox"/> Favourite sport <input type="checkbox"/>	1	Accept any unambiguous indication of the correct answer.
15(b)	A correct explanation, e.g. <ul style="list-style-type: none"> • She is not asking enough people. • She should not just ask her friends. • Her friends may all be girls. 	1	Accept equivalents, e.g. <ul style="list-style-type: none"> • She will not have enough data. • Her friends will not be representative of everyone in the school. 'ask more friends ' 0 marks
16(a)	15	1	Do not accept 15^2
16(b)	3.2 4.6 10 33	1	Accept any unambiguous indication of the correct answer.
17	3600 4.7 20 000	2	In correct order.
	2 correct answers.	B1	
18	2	1	
Question	Answer	Marks	Further Information

19	250 000 (cm ³)	1	
20	($m =$) 3	1	
21(a)		1	
21(b)		1	Accept correct follow through from an incorrect answer to part (a)
21(c)	(1, 2)	1	Accept follow through from correct intersection of <i>their</i> two mirror lines.
22(a)	Shape B: 0 and 1 Shape C: 0 and 2 Shape D: 1 and 1	2	All 6 values correct for 2 marks.
		B1	3 or more values correct.
22(b)	Diagram of a square (or any other more complex diagram that has the correct symmetry properties).	1	Properties need not be shown.

Question	Answer	Marks	Further Information
23(a)	$(x =) 3.2$ ($y =) 3.6$ Allow ± 0.2	2	
	either $x = 3.2$ or $y = 3.6$ (allow ± 0.2) for either answer correct or $x = 2.4$ and $y = 5.2$ (allow ± 0.2) for correct intersection of pair of lines.	B1	
23(b)		2	For 2 marks line must go from (0,6) to (3,0) within a tolerance of half a small square
	at least two correct points are plotted e.g. (0,6), (1,4), (2,2), (3,0) or if the line is not drawn with a ruler	B1	

Question	Answer	Marks	Further Information
24	840 a correct method to find the number of boys, e.g. $\frac{18 \times 20}{3} \times 4$ implied by 480 or the correct method for finding the total number of students, e.g. $\frac{18 \times 20}{3} \times 7$ implied by 840	3	
	18×20 or $18 \div 0.05$ or sight of 360 or 42 or 24 or $\frac{18 \times 7}{3}$ or $\frac{18 \times 4}{3}$	M1	If M2 not scored.

Question	Answer	Marks	Further Information
25	Any correct expression e.g. $x^2 + 2x - 15$ (cm ²) or $(x + 5)(x - 3)$ (cm ²)	2	Allow unsimplified expression for 2 marks. ISW attempts to solve.
	Identifying one side as $x + 5$ or one side as $x - 3$, on the diagram or as part of a product or 3 out of 4 terms correct from $x^2 + 5x - 3x - 15$ $2x$ implies both $5x$ and $-3x$	B1	

