
MATHEMATICS

1112/02

Paper 2

October 2016

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 **11** printed pages and **1** blank page.

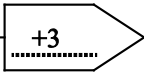
Question number	1		
Part	Mark	Answer	Further Information
(a)	1	3	
(b)	1	35	
Total	2		

Question number	2		
Part	Mark	Answer	Further Information
	1	C D (A) B	
Total	1		

Question number	3		
Part	Mark	Answer	Further Information
(a)	1	(A) B C (D) E F G H	
(b)	1	$x = 3$	
Total	2		

Question number	4		
Part	Mark	Answer	Further Information
	1	$\frac{7}{4}$ $7\frac{4}{109}$ $15\frac{4}{7}$ $(7\frac{4}{15})$ $7\frac{4}{7}$	
Total	1		

Question number	5		
Part	Mark	Answer	Further Information
	1	Image translated right one square and down three squares.	
Total	1		

Question number	6		
Part	Mark	Answer	Further Information
	1	input —  — output	
Total	1		

Question number	7		
Part	Mark	Answer	Further Information
	1	Accept an answer which relates to lack of choice in response boxes or people might want to tick a 'no' box or both boxes.	
Total	1		

Question number	8		
Part	Mark	Answer	Further Information
	1	Any whole number in the range $43995 \leq x < 44005$	
Total	1		

Question number	9		
Part	Mark	Answer	Further Information
(a)	1	$\frac{5}{9}$	Accept equivalent fraction, decimal or percentage. Do not accept in ratio form (e.g. 5 : 9).
(b)	1	$\frac{7}{9}$	Accept equivalent fraction, decimal or percentage. Do not accept in ratio form (e.g. 7 : 9).
Total	2		

Question number	10		
Part	Mark	Answer	Further Information
	1	40 000 000 or 40 million	
Total	1		

Question number	11		
Part	Mark	Answer	Further Information
	1	Ticks Yes and gives a correct reason, e.g. <ul style="list-style-type: none"> • 50% for both but more women's coats were sold. • $\frac{1}{2}$ of 76 = 38, $\frac{1}{2}$ of 108 = 54 • $\frac{1}{2}$ of 108 > $\frac{1}{2}$ of 76 or equivalent. 	
Total	1		

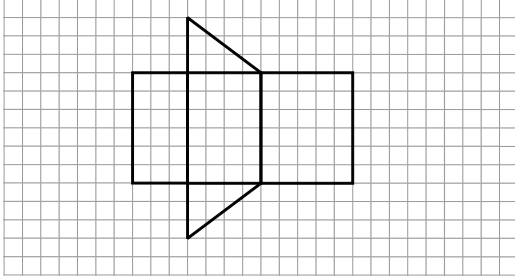
Question number	12		
Part	Mark	Answer	Further Information
	2	5	Award 1 mark for 22 or 27 seen.
Total	2		

Question number	13		
Part	Mark	Answer	Further Information
	2	34 (badges)	Award 1 mark for sight of either of these: <ul style="list-style-type: none"> • 153 / 9 (= 17) • $\frac{2}{9}$ (\times 153)
Total	2		

Question number	14		
Part	Mark	Answer	Further Information
(a)	1	The following four additional combinations stated with no repetitions in table Red Yellow Red Green Green Yellow Green Green	
(b)	1	$\frac{1}{6}$ (or equivalent)	Follow through from <i>their</i> (a) provided that at least 2 extra combinations were added in (a) and answer is > 0 , i.e. not 0/4
Total	2		

Question number	15		
Part	Mark	Answer	Further Information
(a)	1	t^4	
(b)	2	$8r + 2r^2$	For 2 marks accept: <ul style="list-style-type: none"> • $2r(4 + r)$ • $2r(r + 4)$ Award 1 mark for <ul style="list-style-type: none"> • $2(4r + r^2)$ • $2(r^2 + 4r)$ • $r(8 + 2r)$ • $r(2r + 8)$ • $8r$ seen • $2r^2$ seen
Total	3		

Question number	16		
Part	Mark	Answer	Further Information
	2	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	Award 1 mark for: <ul style="list-style-type: none"> • 1 correct box ticked and no incorrect boxes ticked. • 2 correct boxes ticked and 1 incorrect box ticked.
Total	2		

Question number	17		
Part	Mark	Answer	Further Information
	2	Accurately drawn net e.g. 	Award 1 mark if at most one face is missing or inaccurately drawn. Accept other correct accurate arrangements.
Total	2		

Question number	18		
Part	Mark	Answer	Further Information
	1	128 (kilometres)	
Total	1		

Question number	19		
Part	Mark	Answer	Further Information
(a)	1	$\frac{8}{x}$	
(b)	2	$\frac{m+2t}{2m}$	<p>Award 1 mark for a single fraction with denominator $2m$ or numerator $m + 2t$</p> <p>or</p> $\frac{m}{2m} + \frac{2t}{2m}$ <p>or</p> $\frac{\frac{1}{2}m+t}{m}$
Total	3		

Question number	20		
Part	Mark	Answer	Further Information
	2	<p>Euros and supporting working e.g. $8.1 \times 0.72 = 5.832$ or $5.7 \div 0.72 = 7.916(6....)$</p>	<p>Allow figures 5.832 and 7.916(6...) to be rounded only as far as 1dp e.g. 7.92, not 7.91</p> <p>Award 1 mark for 8.1×0.72 or $5.7 \div 0.72$ (i.e. working shown but not evaluated) or Correct conversion (i.e. 5.832 or 7.916....) but with an incorrect decision of dollars.</p>
Total	2		

Question number	21		
Part	Mark	Answer	Further Information
(a)	1	Any of these answers $x = 2, y = 6$ $x = 3, y = 5$ $x = 4, y = 4$ $x = 5, y = 3$ $x = 6, y = 2$	
(b)	1	Any pair of values for m and n such that $m - n = 4$ and m, n are whole numbers greater than 1 e.g. $m = 6, n = 2$ $m = 14, n = 10$	
Total	2		

Question number	22		
Part	Mark	Answer	Further Information
(a)	1	28(.336) (kg)	
(b)	2	38(.25...) (%)	Award 1 mark for $(25.3 - 18.3) \div 18.3$ (implied by $7 \div 18.3$) or 0.38 seen. or for evidence of a correct alternative method such as $(25.3 \div 18.3) - 1$ (-1 can be seen or implied) or 1.38 seen.
Total	3		

Question number	23		
Part	Mark	Answer	Further Information
	1	<p>Rings July and gives a correct reason, e.g.</p> <ul style="list-style-type: none"> • The modal interval was 70-75 seconds in April but was 65-70 seconds in July • The average time was faster in July • There were fewer longer times in July • There were more shorter times in July. • The July race finished in a shorter time. 	
Total	1		

Question number	24		
Part	Mark	Answer	Further Information
	3	9 (minutes)	<p>Award 2 marks either for sight of both 2.25 (hours) (or equivalent) and 2.4 (hours) (or equivalent) or for sight of 0.15 (hours) (but not if 0.15 is given on answer line without unit change.)</p> <p>Award 1 mark for sight of either of 2.25 (hours) (or equivalent) or 2.4 (hours) (or equivalent). or $\frac{90}{40}$ and $\frac{120}{50}$</p>
Total	3		

Question number	25		
Part	Mark	Answer	Further Information
(a)	1	5, 7, 9, 11	
(b)	1	7, 12, 17, 22	
Total	2		

Question number	26		
Part	Mark	Answer	Further Information
	2	(\$) 480	<p>Award 1 mark for</p> <p>Either</p> <p>finding the mass in Kg of the seed the farmer needs, e.g. $0.01 \times 120\,000 (= 1200)$ or $\frac{10}{1000} \times 120\,000 (= 1200)$</p> <p>or</p> <p>finding the cost of seed per square metre, i.e. $0.40 \times 10/1000 (= \\$0.004)$</p> <p>or</p> <p>correct method with one error.</p>
Total	2		

Question number	27		
Part	Mark	Answer	Further Information
	1	(C =) 45G	
Total	1		

Question number	28		
Part	Mark	Answer	Further Information
	3	Rotation and 90° clockwise and centre $(0, -1)$	Combinations of transformations score zero marks. Award 1 mark for each of: <ul style="list-style-type: none">• Rotation• 90° clockwise• Centre $(0, -1)$
Total	3		

