

Q	Answer	Mark	Comments
1	17	B1	

Q	Answer	Mark	Comments
2	700 or (seven) hundred(s)	B1	accept 100(s) ignore spelling, mark intention

Q	Answer	Mark	Comments
3(a)	Equilateral	B1	ignore spelling, mark intention

Q	Answer	Mark	Comments
3(b)	Chord	B1	ignore spelling, mark intention

Q	Answer	Mark	Comments
	1, 3, 5, 9, 15, 45	B2	any order B1 5 or 6 correct values with up to 2 incorrect values or 4 correct values with 0 or 1 incorrect values or 3 correct values with 0 incorrect values
4 Additional Guidance			
Allow values given in products or 'coordinates' eg1 1×45 , 3×15 , 5×9 eg2 (1, 45), (3, 15)			B2 B1
Lists with repeated values cannot score B2, but ignore repeated values in any format for B1 eg1 1, 3, 5, 9, 9 eg2 1×45 , 3×15 , 5×9 , 45×1 , 15×3 , 9×5			B1 B1

Q	Answer	Mark	Comments
5(a)	$15^2 - 2 \times 63$ or 225 or 126	M1	–126 implies M1
	99	A1	

Q	Answer	Mark	Comments
5(b)	$m - k$ or $-k + m$	B1	

Q	Answer	Mark	Comments
6(a)	(5, 3)	B1	may be seen on diagram

Q	Answer	Mark	Comments
6(b)	16	B1	may be seen on diagram

Q	Answer	Mark	Comments
7	$99.2(0) \div 5 \times 24$ or 19.84×24 or $4.8 \times 99.2(0)$ or $2380.8(0) \div 5$ or $\frac{11904}{25}$	M2	oe M1 $99.2(0) \div 5$ or 19.84 oe or $24 \div 5$ or 4.8 oe or $24 \times 99.2(0)$ or $2380.8(0)$ oe
	476.16	A1	
Additional Guidance			
(One year's broadband cost) 238.08 oe implies M1			

Q	Answer	Mark	Comments
8	69.3	B2	B1 $3.8 \times 6.75 \times 2.7$ oe or $\frac{13851}{200}$ or 69.25(5) or 69.2(6) or correct rounding to 1 dp of a number to 2 dp or more, other than 6.75
Additional Guidance			
$(3.8 + 6.75 + 2.7 =) 13.25$ and answer 13.3			B1

Q	Answer	Mark	Comments	
9	Key is missing	B1	oe implied by correct key drawn	
	Symbols are inconsistent		oe eg Prawn Cocktail should have half a symbol or eg if Prawn Cocktail is right the others are wrong or eg total is incorrect	
Additional Guidance				
Ignore irrelevant or incorrect statements				
Examples of 'Key is missing' for B1 Not labelled what each quarter represents Hasn't said what a full circle shows Doesn't say how many people is one piece				
Examples of 'Symbols are inconsistent' for B1 Nicki's total is 32 not 30 The pictogram has inconsistent values 4 for PC it should be 2 Prawn Cocktail is the wrong amount Prawn Cocktail is two, but there's a whole circle				
Incorrect results displayed on chart			B0	

Q	Answer	Mark	Comments
10	0.84×1.75 or 1.47 or 84×1.75 or 147	M1	oe
	9.03 – their 1.47 or 7.56 or 903 – their 147 or 756	M1	oe their 1.47 < 9.03 their 147 < 903 units must be consistent unless recovered
	their $7.56 \div 4$ or their $756 \div 4$ or 189	M1dep	oe dep on 2nd M
	1.89	A1	
Additional Guidance			
Up to M3 may be awarded for correct work, with no answer or incorrect answer, even if this is seen amongst multiple attempts			
Accept 189 on answer line with £ crossed out and p(ence) added			
$9.03 - 1.68 = 7.35$			M0M1
$9.03 - 1.68$ and $7.35 \div 4$			M0M1M1

Q	Answer	Mark	Comments
11(a)	$10x + 4y - 6$ or $2(5x + 2y - 3)$	B3	any order B2 two terms correct B1 one term correct
	Additional Guidance		
	B1 may be awarded for correct work, with no answer or incorrect answer, even if this is seen amongst multiple attempts		
	Further incorrect work after a B3 response is B2 eg1 $10x + 4y - 6 = 8xy$ eg2 $10x + 4y - 6$ and $10x = -10$ eg3 $10x + 4y - 6$ and $2(5x + 2y - 6)$		
	Further incorrect work after a B2 or B1 response is B1 eg1 $10x + 4y + 6 = 20xy$ eg2 $10x - 4y + 6$ and $10x = -2$ eg3 $10x + 4y + 6$ and $2(5x + 2y + 6)$		
	$10x + 4y + 6$ and $2(5x + 2y + 3)$		
	$10x$ and $4y$ and -6		

Q	Answer	Mark	Comments
11(b)	$\frac{a^2}{2}$	B1	accept any indication

Q	Answer	Mark	Comments
12	Maths Drama English (MDE) Maths Drama Spanish (MDS) Maths Drama Biology (MDB) Maths Drama Art (MDA) Maths English Spanish (MES) Maths English Biology (MEB) Maths English Art (MEA)	B3	any order of subjects and/or rows B2 5 or 6 rows correct B1 3 or 4 rows correct
Additional Guidance			
Accept any indication for subject			
Allow repeats and additional rows for up to B2			

Q	Answer	Mark	Comments
13(a)	0.09 × 1400	M1	oe
	126	A1	
Additional Guidance			
M1 may be awarded for correct work, with no answer or incorrect answer, even if this is seen amongst multiple attempts			
Do not ignore further working after 126 seen			
Do not allow a misread of 0.9 for 0.09			
1400 – 126 = 1274 in working			M1
$\frac{126}{1400}$ in working			M1
$\frac{126}{1400}$ on answer line			M1A0

Q	Answer	Mark	Comments			
13(b)						
Alternative method 1						
0.67 + 0.48 = 1.15 and the sum (of the probabilities) is greater than 1 or 0.67 + 0.48 = 1.15 and 0.15 study both or 0.67 + 0.48 = 1.15 and more than the total number of students at school		B2	oe B1 1.15 oe or the sum (of the probabilities) is greater than 1 or 0.15 oe			
Alternative method 2						
938 + 672 = 1610 and more than the total number of students at school or 938 + 672 = 1610 and the total (number of students) is greater than 1400 or 938 and 672 and 210 study both		B2	oe	B1 0.67×1400 oe and 0.48×1400 oe	or 938 and 672 or 1610 or the total (number of students) is greater than 1400 or 210	

Additional Guidance continues on the next page

Additional Guidance	
13(b) cont	B1 may be awarded for correct work, with no answer or incorrect answer, even if this is seen amongst multiple attempts
	$938 + 672 = 1610$ and $1610 > 1400$ B2
	$938 + 672 = 1610$ and students doing both as more than the total B2
	$0.67 + 0.48 = 1.15$ and $1.15 > 1$ B2
	$67 + 48 = 115$ and students doing both as over 100 B2
	$67 + 48 = 115$ and 15% doing both B2
	$67 + 48 = 115$ and 15 doing both B1
	$0.67 + 0.48 = 1.15$ and needs to add to one B1
	$67 + 48 = 115$ B1
	$0.67 + 0.48 = 1.15$ and students doing both as over 100 (must be consistent form for comparison) B1
$\frac{938}{1400}$ and $\frac{672}{1400}$	
$0.67 + 0.48$ is more than 1 B1	

Q	Answer	Mark	Comments
14	Alternative method 1		
	0.6 + 0.6 + 1.3 + 0.8 + 1.7 or 5	M1	oe condone one missing or incorrect distance
	their 5×3 or 15	M1dep	
	their $15 \times 0.4(0) + 3 \times 1.35$ or $6(0.00) + 4.05$	M1dep	oe working in pence their 15 can be a truncated or rounded up decimal
	10.05	A1	SC2 6.05
	Alternative method 2		
	0.6 × 3 or 1.8 or 1.2×3 or 3.6 or 1.3×3 or 3.9 or 0.8×3 or 2.4 or 1.7×3 or 5.1	M1	
	0.6 × 3 + 0.6 × 3 + 1.3 × 3 + 0.8 × 3 + 1.7 × 3 or $1.8 + 1.8 + 3.9 + 2.4 + 5.1$ or 15	M1dep	oe condone one missing or incorrect distance
	their $15 \times 0.4(0) + 3 \times 1.35$ or $6(0.00) + 4.05$	M1dep	oe working in pence their 15 can be a truncated or rounded up decimal
	10.05	A1	SC2 6.05

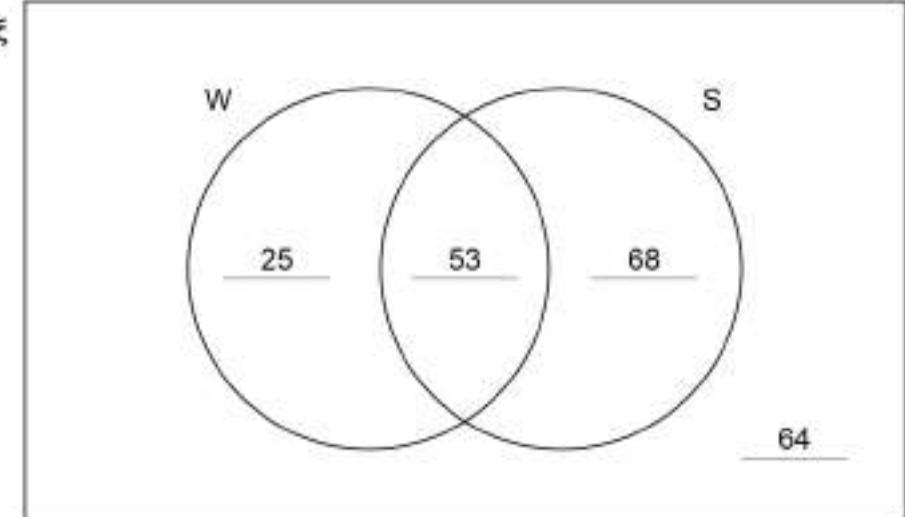
Mark scheme and Additional Guidance continue on the next page

14 cont	Alternative method 3		
	0.6 × 3 or 1.8 or 1.2 × 3 or 3.6 or 1.3 × 3 or 3.9 or 0.8 × 3 or 2.4 or 1.7 × 3 or 5.1	M1	
	0.6 × 3 × 0.4 or 0.72 or 1.2 × 3 × 0.4 or 1.44 or 1.3 × 3 × 0.4 or 1.56 or 0.8 × 3 × 0.4 or 0.96 or 1.7 × 3 × 0.4 or 2.04	M1dep	oe working in pence
	0.6 × 3 × 0.4 × 2 + 1.3 × 3 × 0.4 + 0.8 × 3 × 0.4 + 1.7 × 3 × 0.4 + 3 × 1.35 or 0.72 × 2 + 1.56 + 0.96 + 2.04 + 3 × 1.35 or 6(0.00) + 4.05	M1dep	oe working in pence condone one missing or incorrect distance
	10.05	A1	SC2 6.05
	Additional Guidance		
Units must be consistent unless recovered			
All correct except for missing the return distance from A eg 0.6 + 1.3 + 0.8 + 1.7 or 4.4 4.4 × 3 = 13.2 13.2 × 0.4 + 3 × 1.35 = 9.33			M1M1M1A0
Example using their 15 truncated or rounded up for each mile 0.6 + 1.3 + 0.8 + 1.7 or 4.4 4.4 × 3 = 13.2 13 × 0.4 + 3 × 1.35 = 9.25 or 14 × 0.4 + 3 × 1.35 = 9.65			M1M1M1A0
3.6 + 3.9 + 5.1 (BC missing)			M1M1
3.9 + 2.4 + 5.1 without further working (TA and AT missing)			M1M0

Q	Answer	Mark	Comments
	$30 \div 6 + 18$ or $5 + 18$	M1	oe
	23	A1	23 may be in either output oval
	$3 \times 30 - a =$ their 23 or $90 - a =$ their 23 or $3 \times 30 -$ their 23 (= a) or $90 -$ their 23 (= a)	M1	oe
	67	A1ft	ft $90 -$ their 23
Additional Guidance			
15	Answer 67		M1A1M1A1
	$90 - 67 = 23$ shown in working without 67 on answer line		M1A1M1A0
	For the ft marks allow decimal or fractional answers eg $30 \div 6 + 18 = 1.25$ $90 - 1.25 = 88.75$		M1A0M1A1ft
	$\frac{23+a}{3} = 30$		M1A1M1
	$23 + a \div 3 = 30$		M1A1M0
	Allow their 23 to come from working or the first output oval eg 12 written in the first output oval, then answer 78		M0A0M1A1ft

Q	Answer	Mark	Comments
16	Alternative method 1		
	$\left(\frac{3}{4} =\right) 0.75$ or $\left(4\frac{1}{5} =\right) 4.2$	M1	
	2.5 – 0.75 or 1.75 and 4.2 – 2.5 or 1.7	M1dep	
	$4\frac{1}{5}$ with 1.75 and 1.7 seen	A1	
	Alternative method 2		
	$\left(4\frac{1}{5} =\right) \frac{21}{5}$ or $(2.5 =) \frac{5}{2}$	M1	oe improper fraction
	$\left(\frac{3}{4} =\right) \frac{15}{20}$ and $\left(4\frac{1}{5} =\right) \frac{84}{20}$ and $(2.5 =) \frac{50}{20}$	M1dep	oe with common denominators
	$4\frac{1}{5}$ with 35 and 34 seen or $4\frac{1}{5}$ with $\frac{35}{20}$ and $\frac{34}{20}$ seen	A1	35 and 34 may be implied by the correct multiples of 35 and 34 dependent on the common denominator used oe with common denominators
	Additional Guidance		
	Condone $4\frac{1}{5}$ with $(2.5 - 0.75 =) 1.75$ and $(2.5 - 4.2 =) -1.7$	M1M1A1	

Q	Answer	Mark	Comments
17	750 – 400 or 1100 – 750 or $(1100 - 400) \div 2$ or 350	M1	oe
	1100 + their 350 or 1450 or 1100 + $2 \times$ their 350 or 1800	M1dep	oe
	Addition or correct total of their Level 1 to Level 5 scores	M1	their Level 4 and Level 5 scores must not be zero or blank 5500 implies M3
	4250	A1	SC2 550
Additional Guidance			
SC2 550 is for using Level 5 score 1800 as the highest possible score			
Embedded answer eg $4250 + 1250 = 5500$ without 4250 as their answer			M1M1M1A0

Q	Answer	Mark	Comments
	25 in W only	B1	
	53 in the intersection	B1	
	68 in S only	B1	
	64 outside the circles	B1	
Additional Guidance			
18			B1B1B1B1

Q	Answer	Mark	Comment
	$7.5 \text{ cm} \leq \text{length} < 8.5 \text{ cm}$	B2	B1 one length correct in correct position SC1 $8.5 \text{ cm} \leq \text{length} < 7.5 \text{ cm}$
19	Additional Guidance		
	Accept 8.49 for 8.5		

Q	Answer	Mark	Comments
20	mean of grouped data	B1	accept any indication

Q	Answer	Mark	Comment
21	Method to calculate the increase on the salary or the decrease to the bonus or decimal multiplier 1.06 or 0.91	M1	eg 26000×0.06 or 1560 or 4000×0.09 or 360 oe fraction
	Method to calculate the value of the increased salary or the decreased bonus or Method to calculate the difference between the increase on the salary and the decrease to the bonus	M1dep	eg 26000×1.06 or 27560 or 4000×0.91 or 3640 eg their 1560 – their 360 or 1200 31200 implies M2
	Method to calculate the decimal multiplier or percentage of the total annual pay or 1.04 or 104(%) or Method to calculate the decimal multiplier or percentage change in the total annual pay or 0.04 or 4(%)	M1	eg $\frac{31200}{30000}$ oe eg $\frac{\text{their } 1560 - \text{their } 360}{26000 + 4000}$ or $\frac{1200}{30000}$ oe
	4(%) increase	A1	
	Additional Guidance		
	For first M mark do not accept a misread of increase for decrease eg 1.09		M0
	$26000 \times 1.06 = 27560$ and $4000 \times 1.09 = 4360$ $27560 + 4360 = 31920$ and $\frac{31920}{30000}$		M1M1M1A0
	$24440 + 4360 = 28800$ and $\frac{28800}{30000}$		M0M0M1
	$100 + 6 = 106\%$		M0
	$26000 \times 1.06\%$		M1M0

Q	Answer	Mark	Comment	
22	27 in the box on the left side of calculation	B1	accept 3^3 for 27 throughout	
	Three different prime numbers in the boxes on the right side of calculation	M1		
	$27 = 3 + 5 + 19$ or $27 = 3 + 7 + 17$ or $27 = 3 + 11 + 13$	A1	numbers in the boxes on the right side of calculation can be in any order SC2 $27 = 2 + 2 + 23$ or $27 = 5 + 5 + 17$ or $27 = 7 + 7 + 13$ or $27 = 5 + 11 + 11$	
	Additional Guidance			
	SC2 is for using a repeated prime number			
$27 = 3 + 5 + 17$			B1M1A0	
$27 = 7 + 11 + 9$			B1M0A0	
$27 = 1 + 3 + 23$			B1M0A0	
List of prime numbers with right side boxes empty or incorrect			M0	

Q	Answer	Mark	Comment
Alternative method 1			
	cos chosen or used	M1	
	$\cos w = \frac{6.7}{8.3}$ or $\cos^{-1} \frac{6.7}{8.3}$	M1dep	any letter or symbol for w accept 0.807(...) or 0.81 for $\frac{6.7}{8.3}$
	[35.9, 36.2]	A1	
Alternative method 2			
	$\sin x = \frac{6.7}{8.3}$ or $\sin^{-1} \frac{6.7}{8.3}$ or [53.8, 54.1]	M1	any letter or symbol other than w accept 0.807(...) or 0.81 for $\frac{6.7}{8.3}$
	90 – their [53.8, 54.1]	M1dep	
	[35.9, 36.2]	A1	
Alternative method 3			
23	$\sqrt{8.3^2 - 6.7^2}$ or $\sqrt{68.89 - 44.89}$ or $\sqrt{24}$ or $2\sqrt{6}$ or [4.89, 4.9] and $\sin^{-1} \frac{\text{their [4.89, 4.9]}}{8.3}$ or $\tan^{-1} \frac{\text{their [4.89, 4.9]}}{6.7}$	M2	full method to work out the missing length and use it correctly to work out the value of w any letter or symbol for w
	[35.9, 36.2]	A1	
Additional Guidance			
	Use of sine rule follows Alt method 2		
	$\sin w = \frac{6.7}{8.3}$ without $\sin^{-1} \frac{6.7}{8.3}$ or [53.8, 54.1]		M0
	$\cos w = 0.807$		M1M1
	$\cos^{-1} w = \frac{6.7}{8.3}$ or $\cos = \frac{6.7}{8.3}$ unless recovered		M1M0

Q	Answer	Mark	Comment
24(a)	$\frac{1}{5}$ (Green) and $\frac{4}{5}$ (Yellow) for Bag A	B1	oe fractions, decimals or percentages
	$\frac{3}{10}$ (Green) and $\frac{7}{10}$ (Yellow) on both sections for Bag B	B1	oe fractions, decimals or percentages

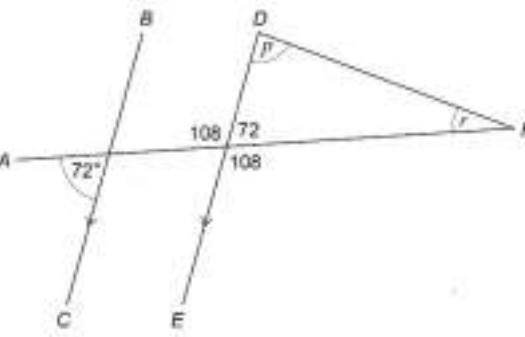
Q	Answer	Mark	Comment
24(b)	their $\frac{1}{5} \times$ their $\frac{3}{10}$	M1	oe fractions or decimals ft their tree diagram with $0 < \text{both probabilities for Green} < 1$
	$\frac{3}{50}$ or 0.06 or 6%	A1ft	oe ft their tree diagram with $0 < \text{both probabilities for Green} < 1$
Additional Guidance			
Ignore incorrect simplification or conversion after correct answer seen			
3 out of 50 or 3:50 without working for M1			MOA0

Q	Answer	Mark	Comment
25	Any correct method that would lead to an equation in x or an equation in y	M1	$\text{eg } 7x - 3x = 100 - 48$ $\text{or } 100 - 7x = 48 - 3x$ $\text{or } 7x + 2\left(\frac{48-3x}{2}\right) = 100$ $\text{or } 3x + 2\left(\frac{100-7x}{2}\right) = 48$ $\text{or } 4x = 52$ $\text{or } 14y - 6y = 336 - 300$ $\text{or } 7\left(\frac{48-2y}{3}\right) + 2y = 100$ $\text{or } 3\left(\frac{100-2y}{7}\right) + 2y = 48$ $\text{or } 8y = 36$
	$x = 13$ or $y = 4.5$ or $y = 4\frac{1}{2}$ or $y = \frac{9}{2}$	A1	
	$x = 13$ and $y = 4.5$ or $y = 4\frac{1}{2}$ or $y = \frac{9}{2}$	A1	
Additional Guidance			
$(7x + 2y) - (3x + 2y) = 100 - 48$			M1
One correct value with one incorrect value (or no second value)			M1A1A0
Embedded correct values in both equations			M1A1A0
Embedded correct values in one equation only			M1A0A0

Q	Answer	Mark	Comments
26(a)	$2 \times 1.9 \times \pi$ or 3.8π or [11.9, 11.94]	M1	oe
	$2 \times 1.9 \times \pi \times 10.2$ or $3.8\pi \times 10.2$ or their [11.9, 11.94] $\times 10.2$	M1dep	oe
	[121, 122]	A1	SC1 [115, 116]
	Additional Guidance		
	SC1 [115, 116] is from using the area of the circle		

Q	Answer	Mark	Comments
26(b)	It is equal to the area of the rectangle	B1	accept any indication

Q	Answer	Mark	Comments
26(c)	It is more than the perimeter of the rectangle	B1	accept any indication

Q	Answer	Mark	Comment
27	<p>Angle labelled as 72 for the correct interior angle of the triangle or angle labelled as 108 for a correct exterior angle of the triangle or $3r + r + 72 = 180$ or $4r = 180 - 72$ or $4r = 108$</p>	M1	<p>oe</p> 
	<p>$\frac{180 - 72}{3+1}$ or $\frac{108}{4}$ or 27 or $108 \times \frac{3}{4}$ or $\frac{4p}{3} = 108$</p>	M1dep	oe
	81	A1	