REVISE
.wales

2.20 — Basic probability of events

Mark schemes for the 2.20 question pack

Spec 3.5.1, 3.5.2 — Unit 2

SOLUTIONS · 2025 SPECIFICATION

Mark schemes for the 5 questions in the corresponding revise.wales question pack (16 marks total). Sources: legacy WJEC GCSE papers, WJEC SAM, and custom-authored mark schemes. Pack layout © revise.wales.

1.(a)	12		B1	
1.(b)	$\frac{1}{12}$		B1	F.T. 1/'their (a)'
1.(c)	$\frac{1}{6}$		B1	

WJEC GCSE MATHEMATICS

AUTUMN 2020 MARK SCHEME

GCSE Mathematics Unit 2 Higher Tier	Mark	Comments
1.(a) $\frac{1}{6} \times \frac{1}{4}$ or equivalent	M1	
$= \frac{1}{24}$ ISW	A1	Accept 0·0416... or 0·0417 or 0·042 for M1A1 M1A0 for '1 in 24', '1:24'.
1.(b) $\frac{1}{5} + \frac{1}{10}$ or equivalent.	M1	
$= \frac{3}{10}$ or equivalent. ISW	A1	
2. $(AC^2 =)\ 10{\cdot}8^2 + 14{\cdot}4^2$	M1	Accept equivalent of using cos rule (as cos 90 = 0).
$AC^2 = 324$ or $(AC =) \sqrt{324}$	A1	
$(AC =)$ 18(cm)	A1	F.T. √'their 324' provided M1 gained. Final answer of AC = 324 is M1A0A0. *Alternative method to find AC* *A correct and complete method (using two trigonometric relationships)* *M2* *AC = 18(cm)* *A1* FT 'their stated AC'. (May be shown on the diagram)
(Area ACD =) $\frac{24 \times 18}{2}$	M1	Accept equivalent of using ½ × 24 × 18 × sin 90 (as sin 90 = 1).
$= 216\ (cm^2)$	A1	
Organisation and Communication	OC1	For OC1, candidates will be expected to: • present their response in a structured way • explain to the reader what they are doing at each step of their response • lay out their explanation and working in a way that is clear and logical • write a conclusion that draws together their results and explains what their answer means
Accuracy of writing	W1	For W1, candidates will be expected to: • show all their working • make few, if any, errors in spelling, punctuation and grammar • use correct mathematical form in their working • use appropriate terminology, units, etc.
3.		*Correct evaluation regarded as enough to identify if negative or positive. If evaluations not seen accept 'too high' or 'too low'.* *Look out for equating $x^3 - 5x = 350$*
One correct evaluation $7{\cdot}2 \le x \le 7{\cdot}3$	B1	
2 correct evaluations $7{\cdot}275 \le x \le 7{\cdot}295$, one < 0, one > 0.	B1	
2 correct evaluations $7{\cdot}275 \le x \le 7{\cdot}285$, one < 0, one > 0.	M1	
$x = 7{\cdot}28$	A1	

x	$x^3 - 5x - 350$		
7·2	−12·75(2)		
7·21	−11(·2..)		
7·22	− 9(·7...)		
7·23	− 8(·2...)		
7·24	− 6(·6...)		
7·25	−5(·1...)		
7·26	− 3(·6...)	7·275	−1(·3....)
7·27	− 2(·1...)	7·284	0(·04..)
7·28	**−0·5(7..)**	**7·285**	**0·1(9..)**
7·29	**0·9(7..)**	7·295	1(·7....)
7·3	2·5(17)		

13. $\frac{2}{5}\times\frac{2}{5}\times\frac{2}{5}$ $= \frac{8}{125}$ (=0·064) ISW	M1 A1	Or equivalent, e.g. 0·4×0·4×0·4 SC1 for 27/125 (=0·216) for a correct evaluation of three odd numbers chosen.

3. Identifying or implying that there are 16 possible correct combinations (e.g 2 × 6) or products (e.g.12)	B1	Award B1 for • simply stating 16 • (4 × 4 =)16 • **completed** sample space (need not be correct) • sight of $\frac{1}{4}\times\frac{1}{4}$ • sight of 16 in a denominator.
Identifies <u>all</u> possible combinations (e.g 2 × 6) or products (e.g 12) that are a factor of 36 *1 × 6 = 6, 1 × 9 = 9, 2 × 6 = 12* *2 × 9 = 18, 3 × 6 = 18, 4 × 9 = 36*	B2	FT 'their 16 possible correct products'. If products not used (e.g 2 + 6 = 8), do not award B2 or B1. Award B2 for **clearly identifying** one of the following: • the **6** (and no more) combinations 1 × 6, 2 × 9, etc that form factors of 36 that can be achieved by the two spinners • the **6** (and no more) products of factors of 36 that can be achieved by the two spinners: 6, 9, 12, **18, 18**, 36 • sight of $6\times\frac{1}{4}\times\frac{1}{4}$ or equivalent. Award B1 for **clearly identifying** one of the following: • at least 4 combinations that are factors of 36 • at least 4 products of factors of 36 that can be achieved by the two spinners: 6, 9, 12, 18, 36 • all of the factors of 36 (1,2,3,4,6,9,12,18,36).
(Probability factor of 36 =) $\frac{6}{16}$ or equivalent. ISW	B1	FT 'their list' only if at least 12 combinations or products given with **at least two factors of 36** that can be achieved by the two spinners **clearly identified.** Penalise, −1, any incorrect notation e.g. '6 out of 16'. Unsupported $\frac{6}{16}$ or $\frac{3}{8}$ or equivalent gains B1 B2 B1.
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Accuracy of writing	W1	For W1, candidates will be expected to: • show all their working • make few, if any, errors in spelling, punctuation and grammar • use correct mathematical form in their working • use appropriate terminology, units, etc.

Unit 1: Higher Tier		
6. (a) 0·2 AND 0·16	B1	
(b) Suitable uniform scale AND correct plots.	B1	F.T 'their 0·2 and 0·16'.
(c) 0·16 AND e.g. 'because calculated from the greatest number of throws'.	B1	F.T 'their 0·16'.
(d) Yes AND e.g. 'because 0·16 (or 80/500) is close to 1/6.	B1	F.T 'their 0·16'.
	4	

End of solutions