Q1. (2018)

A)

21(a)	**Alternative method 1**		
	$80^2 + 60^2 - 2 \times 80 \times 60 \times \cos 75$ or $6400 + 3600 - 9600 \cos 75$ or 7515.(…)	M1	oe
	$\sqrt{\text{their } 7515.(...)}$ or [86.6, 86.7] or 87	M1dep	
	[86.6, 86.7] and Liz or 87 and Liz	A1	accept 86 and Liz or 90 and Liz with full method seen
	Alternative method 2		
	$80^2 + 60^2 - 2 \times 80 \times 60 \times \cos 75$ or $6400 + 3600 - 9600 \cos 75$ or 7515.(…)	M1	oe
	$(80^2 =)$ 6400 and 7515.(…) and Liz	A2	

	Additional Guidance	
	$80^2 + 60^2 - 2 \times 80 \times 60 \times \cos 75$ seen followed by processing error can score up to M2 eg $80^2 + 60^2 - 2 \times 80 \times 60 \times \cos 75$ $= 6400 + 3600 - 9600 \cos 75$ $= 400 \cos 75 = 103.5$ $\sqrt{103.5}$	M1 M1depA0
	You may need to check on your calculator whether to award M1dep after first M1 with a processing error seen eg $80^2 + 60^2 - 2 \times 80 \times 60 \times \cos 75 = 3654$ (processing error) 60.4 (square root of 3654 is implied)	M1 M1depA0
	Ignore any reasons given	
	Alt 2 not possible to score M1A1	
	Answer [86.6, 86.7] and Liz (possibly from scale drawing)	M1M1A1
	[86.6, 86.7] (possibly from scale drawing)	M1M1

B)

21(b)	**Alternative method 1 (answer Liz in (a))**		
	No change	B1	oe eg Liz will still arrive first or Liz will be there even earlier (than Tia)
	Alternative method 2 (answer Tia in (a))		
	Not possible to tell	B1ft	oe eg Liz might arrive before Tia or it depends on how much faster Liz walks or it could be either of them
	Alternative method 3 (answer they arrive at same time in (a))		
	Liz will arrive first	B1ft	oe eg Liz wins
	Alternative method 4 (neither Liz or Tia in (a))		
	If Liz had arrived first there would be no change and if Tia had arrived first it would not be possible to tell	B1ft	oe

	Additional Guidance	
	If correct decision is made, ignore non-contradictory further work	
	Alt 1 Liz will arrive earlier	B1
	Alt 1 No	B0
	Alt 2 Yes	B0

Q2. (2024)

Q	Answer	Mark	Comments	
11	15 × 20 000 ÷ 100 ÷ 1000	M2	oe full method eg 300 000 ÷ 100 ÷ 1000 or 0.2 × 15 or 0.00015 × 20 000 M1 one correct step eg 15 × 20 000 or 300 000 or 20 000 ÷ 100 or 200 or 20 000 ÷ 1000 or 20 or 15 ÷ 100 or 0.15 or 15 ÷ 1000 or 0.015 or 100 × 1000 or 100 000	
	3	A1		
	Additional Guidance			
	M1 may be awarded for correct work with no answer or incorrect answer, even if this is seen amongst multiple attempts			
	M2 will usually be seen in stages eg 20 000 ÷ 100 = 200 200 × 15 = 3000 3000 ÷ 1000			M2
	M1 may be seen embedded in more than one step (extra steps could be incorrect) eg 15 × 20 000 ÷ 100 or 3000 or 15 × 20 000 ÷ 1000 or 300 or 20 000 ÷ 100 ÷ 1000 or 0.2 or 15 ÷ 100 ÷ 1000 or 0.00015			M1
	Ignore their units for method marks			