

Q1. (2017)

27	Alternative method 1 – completing the square		
	$(x + \frac{1}{2})^2 + \dots$	M1	
	$(x + \frac{1}{2})^2 - (\frac{1}{2})^2 + 1$ or $(x + \frac{1}{2})^2 - \frac{1}{4} + 1$ or $(x + \frac{1}{2})^2 + \frac{3}{4}$	A1	oe
	$(x + \frac{1}{2})^2 \geq 0$ and $\frac{3}{4} > 0$ and always positive	A1	oe
	Alternative method 2 – real roots		
	$\frac{-1 \pm \sqrt{1^2 - 4 \times 1 \times 1}}{2 \times 1}$ or a correct sketch showing a quadratic curve with turning point above the x-axis	M1	oe
	States no values on x-axis	A1	oe
	States no values on x-axis and (minimum value =) $\frac{3}{4}$	A1	oe
	Alternative method 3 – Calculus		
	$2x + 1 = 0$	M1	
	$x = -\frac{1}{2}$	A1	
	(minimum value =) $\frac{3}{4}$	A1	

Q2. (2020)

Q	Answer	Mark	Comments
26	Alternative method 1 Working with 3.47.....		
	$10x = 34.7\dots$ or $100x = 347.7\dots$	M1	oe multiplication by a power of 10 eg $1000x = 3477.7\dots$ any letter
	$10x - x = 34.7\dots - 3.47\dots$ or $9x = 31.3$ with $10x = 34.7\dots$ seen or $100x - 10x = 347.7\dots - 34.7\dots$ or $90x = 313$ with $100x = 347.7\dots$ and $10x = 34.7\dots$ seen or $100x - x = 347.7\dots - 3.47\dots$ or $99x = 344.3$ with $100x = 347.7\dots$ seen	M1dep	oe subtraction to eliminate recurring digits eg $1000x - 10x = 3477.7\dots - 34.7\dots$ or $990x = 3443$ with $1000x = 3477.7\dots$ and $10x = 34.7\dots$ seen numbers must all be correct
	$x = 3.47\dots$ stated and M2 scored and $9x = 31.3$ and $(x =) \frac{31.3}{9}$ and $\frac{313}{90}$ or $x = 3.47\dots$ stated and M2 scored and $90x = 313$ and $(x =) \frac{313}{90}$ or $x = 3.47\dots$ stated and M2 scored and $99x = 344.3$ and $(x =) \frac{344.3}{99}$ and $\frac{313}{90}$	A1	oe eg $x = 3.47\dots$ stated and M2 scored and $990x = 3443$ and $(x =) \frac{3443}{990}$ and $\frac{313}{90}$