

Q	Marking instructions	AO	Marks	Typical solution
9(a)(i)	Deduces an appropriate value for x and substitutes into at least one side of the given identity Any value of $x \neq -2, -1$	2.2a	M1	$\frac{2x^2 + x}{(x + 1)(x + 2)^2} \equiv \frac{1}{x + 1} - \frac{6}{(x + 2)^2}$
	Shows that LHS \neq RHS and concludes that Chloe's answer must be incorrect Accept $\frac{2x^2 + x}{(x + 1)(x + 2)^2} \neq \frac{1}{x + 1} - \frac{6}{(x + 2)^2}$	2.1	R1	Let $x = 0 \Rightarrow LHS = 0$ $RHS = \frac{1}{1} - \frac{6}{4} = -\frac{1}{2} \neq 0$ \therefore Chloe's answer must be incorrect
Subtotal			2	
9(a)(ii)	Explains that Chloe should have included an additional term with $x + 2$ in the denominator or Explains that Chloe should have included $(Bx + C)$ as the numerator for $(x + 2)^2$	2.3	E1	Chloe should have included $\frac{C}{x+2}$
Subtotal			1	
9(b)	Writes an identity of the correct form Condone use of equals signs	1.1a	M1	$\frac{2x^2 + x}{(x + 1)(x + 2)^2} \equiv \frac{A}{x + 1} + \frac{B}{x + 2} + \frac{C}{(x + 2)^2}$ $2x^2 + x \equiv A(x + 2)^2 + B(x + 1)(x + 2) + C(x + 1)$
	Uses a suitable method to obtain all three of 'their' constants. For example by substituting or comparing coefficients Only award the M1 if the identity used results from correctly removing fractions from 'their' chosen partial fraction form	3.1a	M1	$x = -1 \Rightarrow A = 1$ $x = -2 \Rightarrow C = -6$ $x^2: A + B = 2 \Rightarrow B = 1$
	Obtains any two correct constants If $Bx + C$ is used, then $B = 1$ and $C = -4$	1.1b	A1	$\frac{2x^2 + x}{(x + 1)(x + 2)^2} \equiv \frac{1}{x + 1} + \frac{1}{x + 2} - \frac{6}{(x + 2)^2}$
	Obtains all three correct values for the constant numerators	1.1b	A1	
Subtotal			4	
Question Total			7	