

C1	Answers to the Non-Calculator Paper	
1	Mark 1 change mixed fraction and start to multiply Mark 2 consistent answer in the simplest form	$\frac{7}{5} \times \frac{3}{14} = \frac{21}{70}$ $\frac{3}{10}$
2	Mark 1 start to expand (evidence of any 3 correct terms) Mark 2 complete expansion Mark 3 collect terms	$5x^3 - 2x^2 + x$ or $-15x^2 + 6x - 3$ $5x^3 - 2x^2 + x - 15x^2 + 6x - 3$ $5x^3 - 17x^2 + 7x - 3$
3	Mark 1 remove the bracket Mark 2 solve	$2 - x - 1 > 11$ $-10 > x$ or $x < -10$
4	Mark 1 common factor Mark 2 factorise fully Mark 3 set factorised form equal to zero Mark 4 find two solutions	$3(x^2 + 3x - 4)$ $3(x + 4)(x - 1)$ $3(x + 4)(x - 1)$ $x = -4$ and $x = 1$
	Lose one mark if 3 solutions are given $x = 0, x = -4$ & $x = 1$ or $x = 3, x = -4$ & $x = 1$	
5	Mark 1 axis of symmetry Mark 2 x coordinate of turning point Mark 3 y coordinate of turning point Mark 4 state nature of turning point	$x = 2$, (not 2) (2, ...) (2, -5) minimum
6	Mark 1 valid common denominator Mark 2 find correct numerators Mark 3 make r the subject	$\frac{\dots}{x(x+1)}$ $\frac{4(x+1)+2x}{x(x+1)}$ $\frac{6x+4}{x(x+1)}$
7	Mark 1 b is 2 Mark 2 c is 3	
8	Mark 1 simplify Mark 2 simplify Mark 3 Use answers from (a) and (b) and rationalise the denominator Mark 4 simplify	$\sqrt{2} \times \sqrt{18} = \sqrt{36} = 6$ $\sqrt{2} + \sqrt{18} = \sqrt{2} + 3\sqrt{2} = 4\sqrt{2}$ $\frac{\sqrt{2} \times \sqrt{18}}{\sqrt{2} + \sqrt{18}} = \frac{6}{4\sqrt{2}}, \quad \frac{6}{4\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \frac{6\sqrt{2}}{4 \times 2}$ $\frac{6\sqrt{2}}{8} = \frac{3\sqrt{2}}{4}$
9	Mark 1 Rearrange the equation Mark 2 state gradient Mark 3 know how to find the x -intercept Mark 4 State coordinates	$3y = -x + 12, y = -\frac{1}{3}x + 4$ $m = -\frac{1}{3}$, (not $m = -\frac{1}{3}x$) $y = 0, x + 0 = 12$ (12, 0)
	If you find the y -intercept (0,4) you can get mark 4, but not mark 3	

10	<p>Mark 1 use $\sin^2 x + \cos^2 x = 1$ to replace $1 - \sin^2 x$</p> <p>Mark 2 simplify</p>	$\frac{\cos^3 x}{1 - \sin^2 x} = \frac{\cos^3 x}{\cos^2 x}$ $\frac{\cos^3 x}{\cos^2 x} = \mathbf{\cos x}$	
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