

Question			Answer	Marks	AO	Guidance
10			$4^2 + 1^2 + x^2$ $17 + x^2 = n^2$ OR $n^2 - x^2 = 17$ $(n - x)(n + x) = 17$ $n - x = 1$ and $n + x = 17$ AND $n - x = -1$ and $n + x = -17$	B1 B1 M1 A1	1.1 1.1 3.1a 2.2a	- Use of Pythagoras implied by $17 + x^2$ - Understanding that $17 + x^2$ is a square number so i.e.g. by equating to at least one square number $17 + x^2 = 25$ - Allow e.g. $n = \sqrt{17 + x^2}$ and n integer so i.e.g. by equating to an integer - Rearranging to get <i>their</i> 17 on one side and factorising - OR $n - x = 17$ and $n + x = 1$ AND $n - x = -17$ and $n + x = -1$ - Implies M1. If the final B2 is earned following only one pair of correct equations then award A1
			Alternative method 1 for M1 A1 Evidence of adding square numbers to 17 to try to get a square number Or subtracting 17 from square numbers to get a square number Or $x^2 = 64$ Explanation of why there will be no further values	M1 A1		- At least two different square numbers added to <i>their</i> 17 e.g. two from: $17 + 1$, $17 + 4$, $17 + 9$, $17 + 16$, $17 + 25$, $17 + 49$, $17 + 64$, $17 + 81$ and so on - Or tested two using $17 + x^2 = 25$, $17 + x^2 = 36$, $17 + x^2 = 49$, $17 + x^2 = 64$, $17 + x^2 = 81$ and so on - e.g. Since 64 and $17 + 64$ are adjacent square numbers there will be no larger values of x^2
			Alternative method 2 for M1 A1 $(x + 1)^2 - x^2 = 17$ $2x + 1 = 17$ and $(x - 1)^2 - x^2 = 17$	M1 A1		- Uses adjacent square numbers - Implied by $2x + 1 = 17$ - Condone not testing earlier squares for this M1 - If the final B2 is earned following M1 then award A1
			8 and -8	B2 [6]	1.1	- Both values and no others B1 if only one value given (ignore extras)