7.		
(a)	Maximise ($P=$) $0.75x + 1.2y + 1.45z$	B1
	Subject to $x+z<200$	B1
	$5y \geqslant 2x$	M1 A1
	$\frac{3}{4}(x + y + z) \geqslant y \quad \Rightarrow \quad 3x + 3z \geqslant y$ $(x, y, z \geqslant 0)$	M1 A1 **(6)**
(b)	Use $x=100, z=25$ to obtain two values of y, leading to $40 \leqslant y \leqslant 375$ Minimum profit (£)159.25, Maximum profit (£)561.25	M1 A1ft A1 **(3)**
		9 marks
	Notes for Question 7	
a1B1	CAO objective function (oe) + maximise (accept max but not maximum) Do not ISW if converted to integer coefficients without a correct multiple of P.	
a2B1	CAO ($x+z<200$)	
a1M1	$5y \square 2x$ where $\square$ is any inequality (accept $2.5y \square x$ o.e. for M1 only) or special case $2y \geqslant 5x$ (must be integers)	
a1A1	CAO ($5y \geqslant 2x$)	
a2M1	$\frac{3}{4}(x+y+z) \square y$ where $\square$ is any inequality If they use 75% only award this mark when this is converted to a fraction or decimal (which may be implied by the correct fully simplied inequality)	
a2A1	CAO ($3x + 3z \geqslant y$) (or equivalent rearrangement, but must be fully simplified)	
b1M1	Obtaining two values of y (by substituting $x=100$ and $z=25$ into **their** inequalities but not $y \geq 0$)	
b1A1ft	Correct maximum and minimum values for y (ft y for the special case $2y \geqslant 5x$ only; accept if $y \geq 2.5x$ seen in (a)) either as inequalities or stated values (If they have $2y \geqslant 5x$ their minimum value is 250)	
b2A1	CAO on minimum and maximum profit (The correct minimum and maximum values with no incorrect working seen implies M1 A1 A1)	

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