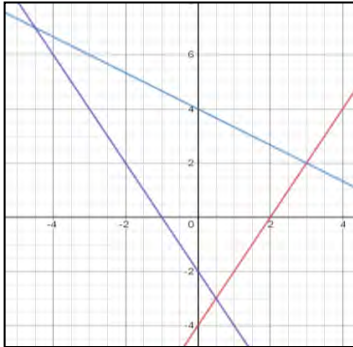
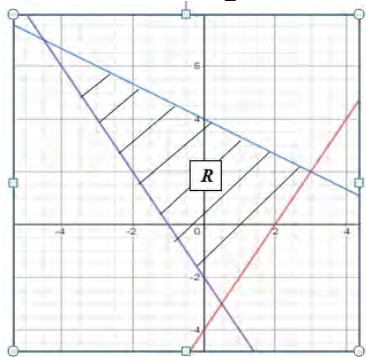


Question	Scheme	Marks															
4 (a)	<p>$y = 2x - 4$ Intersections with axes at $(0, -4)$ $(2, 0)$ $2x + 3y = 12$ Intersections with y axes at $(0, 4)$ and. $(6, 0)$ $y + 2x + 2 = 0$ Intersections with y axes at $(0, -2)$ and. $(-1, 0)$</p> 	<p>B1 B1 B1 [3]</p>															
(b)	<p>For the correct region shaded in or out</p> 	<p>B1ft [1]</p>															
(c)	<p>Points of intersection are:</p> <table border="1" data-bbox="295 1471 1040 1529"><tr><td>$(0.5, -3)$</td><td>$(3, 2)$</td><td>$(-4.5, 7)$</td></tr></table> <table border="1" data-bbox="295 1561 1276 1704"><tr><td>Vertex</td><td>$(0.5, -3)$</td><td>$(3, 2)$</td><td>$(-4.5, 7)$</td></tr><tr><td>$P = x - 2y$</td><td>6.5</td><td>-1</td><td>-18.5</td></tr><tr><td></td><td></td><td></td><td>Least</td></tr></table> <p>For $P = -18.5$</p>	$(0.5, -3)$	$(3, 2)$	$(-4.5, 7)$	Vertex	$(0.5, -3)$	$(3, 2)$	$(-4.5, 7)$	$P = x - 2y$	6.5	-1	-18.5				Least	<p>M1 A1 dM1 A1 [4]</p>
$(0.5, -3)$	$(3, 2)$	$(-4.5, 7)$															
Vertex	$(0.5, -3)$	$(3, 2)$	$(-4.5, 7)$														
$P = x - 2y$	6.5	-1	-18.5														
			Least														
ALT- objective line approach																	

	Slope of objective line is $\frac{1}{2}$ $\left(-\frac{9}{2}, 7\right)$ $P = -\frac{9}{2} - 2(7)$ For $P = -18.5$	[M1 A1 M1 A1]
Total 8 marks		

Part	Mark	Notes			
(a)	B1B1B1	B1 for each line drawn correctly $y = 2x - 4$ Intersections with axes at (0, -4) (2, 0) $2x + 3y = 12$ Intersections with y axes at (0, 4) and. (6, 0) $y + 2x + 2 = 0$ Intersections with y axes at (0, -2) and. (-1, 0) Minimum length of line is 4 units horizontally or 4 units vertically.			
(b)	B1ft	For the correct region marked - allow shaded in or out Ft for shading the closed region from their lines. Must be a closed region.			
(c)	M1	For attempting to find the correct coordinates of at least one intersection either by reading values from their graphs or by solving simultaneous equations. If they are solving simultaneous equations, they must find a value for x and a corresponding value for y			
	A1	For at least one correct point of intersection <table><tr><td>(0.5, -3)</td><td>(3, 2)</td><td>(-4.5, 7)</td></tr></table>	(0.5, -3)	(3, 2)	(-4.5, 7)
	(0.5, -3)	(3, 2)	(-4.5, 7)		
	dM1	For substituting one point of intersection into the given P ft their coordinates			
A1	For identifying $P = -18.5$				
ALT – objective line approach					
	M1	For attempt to use objective line approach. Identifies that the slope of objective line is $\frac{1}{2}$ Identifies the intersection of $2x + 3y = 12$ and $y + 2x + 2 = 0$ as the point where P is least.			
	A1	For finding the correct coordinates $\left(-\frac{9}{2}, 7\right)$			
	M1	For substituting their $\left(-\frac{9}{2}, 7\right)$ into P .			
	A1	For $P = -18.5$			