

1/25	a)	$-5x^2 + 4x + 12 < 0 \Leftrightarrow \begin{cases} x < -\frac{6}{5} \\ x > 2 \end{cases}$ $\text{Vậy } S = \left(-\infty; -\frac{6}{5}\right) \cup (2; +\infty).$																	
	b)	$16x^2 + 40x + 25 < 0 \Leftrightarrow x \in \emptyset.$ $\text{Vậy } S = \emptyset.$																	
	c)	$3x^2 - 4x + 4 \geq 0 \Leftrightarrow x \in \mathbb{R}$ $\text{Vậy } S = \mathbb{R}.$																	
	d)	$x^2 - x - 6 \leq 0 \Leftrightarrow -2 \leq x \leq 3$ $\text{Vậy } S = [-2; 3].$																	
2/25	a)	$\frac{x^2 - 9x + 14}{x^2 - 5x + 4} > 0$ Bảng xét dấu: <table><tr><td>x</td><td>$-\infty$</td><td>1</td><td>2</td><td>4</td><td>7</td><td>$+\infty$</td></tr><tr><td>VT</td><td>+</td><td> </td><td>-</td><td>0</td><td>+</td><td> </td><td>-</td><td>0</td><td>+</td></tr></table> $\text{Vậy } S = (-\infty; 1) \cup (2; 4) \cup (7; +\infty).$	x	$-\infty$	1	2	4	7	$+\infty$	VT	+		-	0	+		-	0	+
	x	$-\infty$	1	2	4	7	$+\infty$												
VT	+		-	0	+		-	0	+										
b)	$\frac{-2x^2 + 7x + 7}{x^2 - 3x - 10} \leq -1 \Leftrightarrow \frac{x^2 - 4x + 3}{x^2 - 3x - 10} \geq 0$ Bảng xét dấu: <table><tr><td>x</td><td>$-\infty$</td><td>-2</td><td>1</td><td>3</td><td>5</td><td>$+\infty$</td></tr><tr><td>VT</td><td>+</td><td> </td><td>-</td><td>0</td><td>+</td><td>0</td><td>-</td><td> </td><td>+</td></tr></table> $\text{Vậy } S = (-\infty; -2) \cup [1; 3] \cup (5; +\infty).$	x	$-\infty$	-2	1	3	5	$+\infty$	VT	+		-	0	+	0	-		+	
x	$-\infty$	-2	1	3	5	$+\infty$													
VT	+		-	0	+	0	-		+										
	c)	$(2x + 1)(x^2 + x - 30) \geq 0$ Bảng xét dấu: <table><tr><td>x</td><td>$-\infty$</td><td>-6</td><td>$-\frac{1}{2}$</td><td>5</td><td>$+\infty$</td></tr><tr><td>VT</td><td>-</td><td>0</td><td>+</td><td>0</td><td>-</td><td>0</td><td>+</td></tr></table> $\text{Vậy } S = \left[-6; -\frac{1}{2}\right] \cup [5; +\infty].$	x	$-\infty$	-6	$-\frac{1}{2}$	5	$+\infty$	VT	-	0	+	0	-	0	+			
x	$-\infty$	-6	$-\frac{1}{2}$	5	$+\infty$														
VT	-	0	+	0	-	0	+												
	d)	$x^4 - 3x^2 \leq 0 \Leftrightarrow x^2(x^2 - 3) \leq 0$																	

Bảng xét dấu:

x	$-\infty$	$-\sqrt{3}$	0	$\sqrt{3}$	$+\infty$
VT	+	0	-	0	+

Vậy $S = [-\sqrt{3}; \sqrt{3}]$.

3/25

a)

$$(m-5)x^2 - 4mx + m - 2 = 0 \quad (*)$$

Trường hợp 1: $m - 5 = 0 \Leftrightarrow m = 5$

$$(*) \Leftrightarrow -20x + 3 = 0 \Leftrightarrow x = \frac{3}{20} \Rightarrow \text{nhận } m = 5.$$

Trường hợp 2: $m - 5 \neq 0 \Leftrightarrow m \neq 5$

$$\text{ycbt} \Leftrightarrow \Delta' \geq 0 \Leftrightarrow 4m^2 - (m-5)(m-2) \geq 0$$

$$\Leftrightarrow 3m^2 + 7m - 10 \leq 0 \Leftrightarrow \begin{cases} m \leq -\frac{10}{3} \\ m \geq 1 \end{cases}.$$

$$\text{So điều kiện } m \neq 5, \text{ ta được } \begin{cases} m \leq -\frac{10}{3} \\ 1 \leq m \neq 5 \end{cases}$$

Vậy $m \geq 1$ hoặc $m < -\frac{10}{3}$ thỏa ycbt.

b)

$$(m+1)x^2 + 2(m-1)x + 2m - 3 = 0 \quad (*)$$

Trường hợp 1: $m + 1 = 0 \Leftrightarrow m = -1$

$$(*) \Leftrightarrow -4x - 5 = 0 \Leftrightarrow x = -\frac{5}{4} \Rightarrow \text{nhận } m = -1.$$

Trường hợp 2: $m + 1 \neq 0 \Leftrightarrow m \neq -1$

$$\text{ycbt} \Leftrightarrow \Delta' \geq 0 \Leftrightarrow (m-1)^2 - (m+1)(2m-3) \geq 0$$

$$\Leftrightarrow m^2 + m - 4 \leq 0$$

$$\Leftrightarrow \frac{-1-\sqrt{17}}{2} \leq m \leq \frac{-1+\sqrt{17}}{2}.$$

Vậy $\frac{-1-\sqrt{17}}{2} \leq m \leq \frac{-1+\sqrt{17}}{2}$ thỏa ycbt.

c)

$$x^2 + (m-2)x - 2m + 3 = 0$$

$$\text{ycbt} \Leftrightarrow \Delta \geq 0 \Leftrightarrow (m-2)^2 - 4(-2m+3) \geq 0$$

$$\Leftrightarrow m^2 + 4m - 8 \geq 0 \Leftrightarrow \begin{cases} m \leq -2 - 2\sqrt{3} \\ m \geq -2 + 2\sqrt{3} \end{cases}$$

		Vậy $m \leq -2 - 2\sqrt{3}$ hoặc $m \geq -2 + 2\sqrt{3}$ thỏa ycbt.
4/25	a)	$\begin{cases} 2x^2 + 9x + 7 > 0 \\ x^2 + x - 6 < 0 \end{cases} \Leftrightarrow \begin{cases} x < -\frac{7}{2} \text{ hoặc } x > -1 \\ -3 < x < 2 \end{cases} \Leftrightarrow -1 < x < 2.$ <p>Vậy $S = (-1; 2)$.</p>
	b)	$\begin{cases} 4x^2 - 5x - 6 \leq 0 \\ -4x^2 + 12x - 5 < 0 \end{cases} \Leftrightarrow \begin{cases} -\frac{3}{4} \leq x \leq 2 \\ x < \frac{1}{2} \text{ hoặc } x > \frac{5}{2} \end{cases} \Leftrightarrow -\frac{3}{4} \leq x < \frac{1}{2}.$ <p>Vậy $S = \left[-\frac{3}{4}; \frac{1}{2}\right)$.</p>
	c)	$\begin{cases} -2x^2 - 5x + 4 \leq 0 \\ -x^2 - 3x + 10 \geq 0 \end{cases} \Leftrightarrow \begin{cases} x \leq \frac{-5 - \sqrt{57}}{4} \text{ hoặc } x \geq \frac{-5 + \sqrt{57}}{4} \\ -5 \leq x \leq 2 \end{cases}$ $\Leftrightarrow \begin{cases} -5 \leq x \leq \frac{-5 - \sqrt{56}}{4} \\ \frac{-5 + \sqrt{57}}{5} \leq x \leq 2 \end{cases}.$ <p>Vậy $S = \left[-5; \frac{-5 - \sqrt{57}}{4}\right] \cup \left[\frac{-5 + \sqrt{57}}{4}; 2\right]$.</p>
	d)	$\begin{cases} 2x^2 + x - 6 > 0 \\ 3x^2 - 10x + 3 > 0 \end{cases} \Leftrightarrow \begin{cases} x < -2 \text{ hoặc } x > \frac{3}{2} \\ x < \frac{1}{3} \text{ hoặc } x > 3 \end{cases} \Leftrightarrow \begin{cases} x < -2 \\ x > 3 \end{cases}.$ <p>Vậy $S = (-\infty; -2) \cup (3; +\infty)$.</p>

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a)

$$\frac{x^4 - x^2}{x^2 + 5x + 6} \leq 0 \Leftrightarrow \frac{x^2(x-1)(x+1)}{x^2 + 5x + 6} \leq 0$$

Bảng xét dấu:

x	$-\infty$	-3	-2	-1	0	1	$+\infty$		
VT	+		-		+	0	-	0	+

Vậy $S = (-3; -2) \cup [-1; 1]$.

b)

$$\frac{1}{x^2 - 5x + 4} < \frac{1}{x^2 - 7x + 10} \Leftrightarrow \frac{x - 3}{(x^2 - 5x + 4)(x^2 - 7x + 10)} > 0$$

		<p>Bảng xét dấu:</p> <table><tr><td>x</td><td>$-\infty$</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>$+\infty$</td></tr><tr><td>VT</td><td>-</td><td> </td><td>+</td><td> </td><td>-</td><td>0</td><td>+</td><td> </td><td>-</td><td> </td><td>+</td></tr></table> <p>Vậy $S = (1;2) \cup (3;4) \cup (5;+\infty)$.</p>	x	$-\infty$	1	2	3	4	5	$+\infty$	VT	-		+		-	0	+		-		+
x	$-\infty$	1	2	3	4	5	$+\infty$															
VT	-		+		-	0	+		-		+											
8/25	a)	<p>Điều kiện xác định: $(2x+5)(1-2x) \geq 0$.</p> <p>Bảng xét dấu:</p> <table><tr><td>x</td><td>$-\infty$</td><td>$-\frac{5}{2}$</td><td>$\frac{1}{2}$</td><td>$+\infty$</td></tr><tr><td>VT</td><td>-</td><td>0</td><td>+</td><td>0</td><td>-</td></tr></table> <p>Vậy tập xác định $D = \left[-\frac{5}{2}; \frac{1}{2}\right]$.</p>	x	$-\infty$	$-\frac{5}{2}$	$\frac{1}{2}$	$+\infty$	VT	-	0	+	0	-									
x	$-\infty$	$-\frac{5}{2}$	$\frac{1}{2}$	$+\infty$																		
VT	-	0	+	0	-																	
	b)	<p>Điều kiện xác định: $\frac{x^2+5x+4}{2x^2+3x+1} \geq 0$.</p> <p>Bảng xét dấu:</p> <table><tr><td>x</td><td>$-\infty$</td><td>-4</td><td>-1</td><td>$-\frac{1}{2}$</td><td>$+\infty$</td></tr><tr><td>VT</td><td>-</td><td>0</td><td>+</td><td> </td><td>-</td><td> </td><td>+</td></tr></table> <p>Vậy tập xác định $D = [-4;-1] \cup \left(-\frac{1}{2};+\infty\right)$.</p>	x	$-\infty$	-4	-1	$-\frac{1}{2}$	$+\infty$	VT	-	0	+		-		+						
x	$-\infty$	-4	-1	$-\frac{1}{2}$	$+\infty$																	
VT	-	0	+		-		+															
9/25	a)	<p>$\begin{cases} 4x-3 < 3x+4 \\ x^2-7x+10 \leq 0 \end{cases} \Leftrightarrow \begin{cases} x < 7 \\ 2 \leq x \leq 5 \end{cases} \Leftrightarrow 2 \leq x \leq 5$.</p> <p>Vậy $S = [2;5]$.</p>																				
	b)	<p>$\begin{cases} 2x^2+9x-7 > 0 \\ x^2+x-6 \leq 0 \end{cases}$</p> <p>$\Leftrightarrow \begin{cases} x < \frac{-9-\sqrt{137}}{4} \text{ hoặc } x > \frac{-9+\sqrt{137}}{4} \\ -3 \leq x \leq 2 \end{cases}$</p> <p>$\Leftrightarrow \frac{-9+\sqrt{137}}{4} < x \leq 2$</p> <p>Vậy $S = \left(\frac{-9+\sqrt{137}}{4}; 2\right]$.</p>																				

c)
$$\begin{cases} x^2 - 9 < 0 & (1) \\ (x-1)(3x^2 + 7x + 4) \geq 0 & (2) \end{cases}$$

$(1) \Leftrightarrow -3 < x < 3$

(2) có bảng xét dấu:

x	$-\infty$	$-\frac{4}{3}$	-1	1	$+\infty$		
VT	-	0	+	0	-	0	+

$(2) \Leftrightarrow \begin{cases} -\frac{4}{3} \leq x \leq -1 \\ 1 \leq x < 3 \end{cases}$

Vậy $S = \left[-\frac{4}{3}; -1\right] \cup [1; 3)$.