



UNIVERSIDAD SIMÓN BOLÍVAR
 Dept. Formación General y Ciencias Básicas
 MATEMÁTICAS I



Práctica 1
 Desigualdades - Valor absoluto

Resuelva las siguientes desigualdades:

1. $x^2 - x < 6$
 $S : (-2, 3)$
2. $3x^2 - x - 2 > 0$
 $S : (-\infty, -\frac{2}{3}) \cup (1, \infty)$
3. $\frac{2x - 5}{x - 2} \leq 1$
 $S : (2, 3]$
4. $x^3 - 5x^2 + 4x \leq 0$
 $S : (-\infty, 0] \cup [1, 4]$
5. $(x + 1)(x - 1)^2(x - 3) \leq 0$
 $S : [-1, 3]$
6. $x^2 - 2x - 4 \leq 0$
 $S : [1 - \sqrt{5}, 1 + \sqrt{5}]$
7. $|3x + 1| < 2|x - 6|$
 $S : (-13, \frac{11}{5})$
8. $\left|2 + \frac{5}{x}\right| > 1$
 $S : (-\infty, -5) \cup (-\frac{5}{3}, 0) \cup (0, \infty)$
9. $|x - 3| < \delta \Rightarrow |6x - 18| < \epsilon$
10. $|2x + 3| \leq 1$
 $S : [-2, -1]$
11. $|2x + 4| - |x - 1| \leq 4$
 $S : [-9, \frac{1}{3}]$
12. $\frac{x}{x + 2} < 0$
 $S : (-2, 0)$
13. $\frac{2x + 1}{1 - x} \leq \frac{x + 2}{1 - x}$
 $S : \mathbb{R} \setminus \{1\}$
14. $x^3 - 6x^2 + 11x - 6 > 0$
 $S : (1, 2) \cup (3, \infty)$
15. $\left|\frac{x - 1}{2 - x}\right| \geq 1$
 $S : [\frac{3}{2}, 2) \cup (2, \infty)$
16. $\frac{(x^2 - 1)(2x + 4)}{x(3 - x)} > 0$
 $S : (-\infty, -2) \cup (-1, 0) \cup (1, 3)$
17. $\frac{1}{1 + x^2} \geq 6$
18. $|x^2 - 2x - 4| > 4$
19. $\left|\frac{x - 3}{x + 5}\right| \leq 1$
20. $\left|\frac{-2x^2 - 4x - 2}{x^2 + x - 2}\right| \leq 1$
21. $|x(x - 1)| < |x + 3|$
22. $\frac{\sqrt{2x^2 - 8}}{|x - 3|} > 1$
23. $\frac{|x^2 + 6x - 7|(x + 1)}{x} > 0$
24. $\left|\frac{-2x^2 - 4x - 2}{x^2 + x - 2}\right| \leq 1$
25. $\frac{(x - 3)^7(x - 2)^6(x^3 + 1)}{(x - 1)^2(2x + 1)} \leq 0$
26. $|x^2 - 2x - 3| \geq x + 2$
27. $\frac{|x + 3| + x}{x + 2} > 1$
28. $x - 7 < 2x - 5$;
 $S : (-2, \infty)$
29. $3x - 5 < 4x - 6$
30. $7x - 2 \leq 9x + 3$;
 $S : [-5/2, \infty]$
31. $5x - 3 > 6x - 4$
32. $10x + 1 > 8x + 5$;
 $S : (2, \infty)$
33. $-2x + 5 \geq 4x - 3$
34. $-4 < 3x + 2 < 5$;
 $S : (-2, 1)$

35. $-3 < 4x - 9 < 11$
36. $-3 < 1 - 6x \leq 4$; S: $[-\frac{1}{2}, \frac{2}{3})$
37. $4 < 5 - 3x < 7$
38. $2 + 3x < 5x + 1 < 16$; S: $(1/2, 3)$
39. $2x - 4 \leq 6 - 7x \leq 3x + 6$
40. $x^2 + 2x - 12 < 0$;
S: $(-1 - \sqrt{13}, -1 + \sqrt{13})$
41. $x^2 - 5x - 6 > 0$
42. $2x^2 + 5x - 3 > 0$; S: $(-\infty, -3) \cup (1/2, \infty)$
43. $4x^2 - 5x - 6 < 0$
44. $x^2 - 3x - 4 \geq 0$; S: $(-\infty, -1] \cup [4, \infty)$
45. $x^2 - 4x + 4 \leq 0$;
46. $3x^2 + 17x - 6 > 0$;
S: $(-\infty, -6) \cup (1/3, \infty)$
47. $14x^2 + 11x - 15 \leq 0$;
48. $\frac{x+4}{x-3} \leq 0$; S: $[-4, 3)$
49. $\frac{3x-2}{x-1} \geq 0$
50. $\frac{2}{x} < 5$; S: $(-\infty, 0) \cup (2/5, \infty)$
51. $\frac{7}{4x} \leq 7$
52. $\frac{1}{3x-2} \leq 4$; S: $(-\infty, 2/3) \cup [3/4, \infty)$
53. $\frac{3}{x+5} > 2$;
54. $(2x-3)(x-1)^2(x-3) \geq 0$;
S: $(-\infty, 3/2] \cup [3, \infty)$
55. $(2x-3)(x-1)^2(x-3) > 0$
56. $(x+2)(x-1)(x-3) > 0$;
S: $(-2, 1) \cup (3, \infty)$
57. $(2x+3)(3x-1)(x-2) < 0$
58. $x^3 - 5x^2 - 6x < 0$; S: $(-\infty, -1) \cup (0, 6)$
59. $x^3 - x^2 - x + 1 > 0$
60. $(x+1)(x^2+2x-7) \geq x^2 - 1$ S: $[-3, -1]$
61. $x^4 - 2x^2 \geq 8$ S: $(-\infty, -2] \cup [2, \infty)$
62. $(x^2+1)^2 - 7(x^2+1) + 10 < 0$;
S: $(-2, -1) \cup (1, 2)$
63. $|x+2| < 1$; S: $(-3, -1)$
64. $|x-2| \geq 5$;
65. $|2x-1| > 2$; S: $(-\infty, -\frac{1}{2}) \cup (\frac{3}{2}, \infty)$
66. $|\frac{x}{4} + 1| < 1$; S: $(-8, 0)$
67. $|\frac{2x}{7} - 5| \geq 7$;
68. $|2x-7| > 3$; S: $(-\infty, 2) \cup (5, \infty)$
69. $|\frac{x}{2} + 7| + 7 \geq 2$;
70. $|2 + \frac{5}{x}| > 1$;
S: $(-\infty, -5) \cup (-5/3, 0) \cup (0, \infty)$
71. $|\frac{1}{x} - 3| > 6$;
72. $|x-1| < 2|x-3|$; S: $(-\infty, \frac{7}{3}) \cup (5, \infty)$
73. $|2x-1| \geq |x+1|$;
74. $2|2x-3| < |x+10|$; S: $(-\frac{4}{5}, \frac{16}{3})$
75. $|3x-1| < 2|x+6|$;