

ALGEBRE : 4UAA5 Inéquations

Exercices proposés en correction de contrôle

1. $x^2 + 9 < 0$
2. $16x^2 - 25 > 0$
3. $6x^3 \leq 2x^2$
4. $2x^2(3x^2 - 1) \leq 0$
5. $(x - 1)^2 \geq 0$
6. $5x^4 \leq 0$
7. $-2x^2 \geq 4$
8. $\frac{4x-1}{3} - (x+1)^2 < 2 - x^2$
9. $5x(2x - 81) \leq 0$
10. $\frac{6x-5}{9-x} \geq 0$
11. $18x^2 + 9x < 14$
12. $\frac{9x^2 + 12x + 4}{(9-x)(2x^3 - 17x^2 - 15x + 54)} \geq 0$
13. $-6x^7(x^2 - 16) < 0$
14. $\frac{2x^4}{x^2 - 5x + 6} \geq 0$
15. $\frac{4x-3}{x-1} > 2$
16. $\frac{4-x}{2x-1} < \frac{x+3}{3-2x}$
17. $16x^2 < 4$
18. $\frac{-\sin 2\pi/3}{-x^4 + 2x^3 - 2x^2 + x} > \cos \frac{\pi}{2}$
19. $\frac{(7-2x)^3}{(1-5x)^4} < 0$
20. $\frac{\cos \frac{7\pi}{4} - 0,8}{x^3 - 6x^2 + 12x - 8} > 0$

Solutions

1. $S = \{ \}$

2. $S =]-\infty, -\frac{5}{4}[\cup]\frac{5}{4}, +\infty[$

3. $S =]-\infty, \frac{1}{3}]$

4. $S = [-\frac{\sqrt{3}}{3}, \frac{\sqrt{3}}{3}]$

5. $S = \mathbb{R}$

6. $S = \{0\}$

7. $S = \{ \}$

8. $S =]-5, +\infty[$

9. $S = [0, \frac{81}{2}]$

10. $S = [\frac{5}{6}, 9[$

11. $S =]-\frac{7}{6}, \frac{2}{3}[$

12. $S =]-2, \frac{3}{2}[$

13. $S =]-4, 0[\cup]4, +\infty[$

14. $S =]-\infty, 2[\cup]3, +\infty[$

15. $S =]-\infty, \frac{1}{2}[\cup]1, +\infty[$

16. $S =]-\infty, \frac{1}{2}[\cup]\frac{15}{16}, \frac{3}{2}[$

17. $S =]-\frac{1}{2}, \frac{1}{2}[$

18. rem : $\sin \frac{2\pi}{3} = \sin \frac{\pi}{3} = \frac{\sqrt{3}}{2}$ et $\cos \frac{\pi}{2} = 0$

$S =]-\infty, 0[\cup]1, +\infty[$

19. $S =]\frac{7}{2}, +\infty[$

20. rem : $\cos \frac{7\pi}{4} = \cos \frac{\pi}{4} = \frac{\sqrt{2}}{2}$

$S =]-\infty, 2[$