

COMPITO ESTIVO – CLASSE 4ªA

1. Risolvi le seguenti disequazioni di 2° grado complete e non

$$4x+21-x^2>0 \quad x^2-\frac{3}{5}x+\frac{1}{3}>0 \quad 4x^2-4x\sqrt{3}+3\leq 0$$

$$-7x^2+x-2<0 \quad x^2+x\sqrt{2}<0 \quad 4x^2-4x+1<0$$

$$5-x^2\leq 0 \quad 5x^2+3>0 \quad \frac{x+1}{2}-x^2>\frac{x^2+6}{9}-\frac{2x+1}{6}$$

$$\frac{(2+x)(x-1)}{4}-\frac{x(x+3)}{2}>-x$$

$$[x-4(1-x)+2](1-x)<x-2(1-2x)$$

$$2x\left(x-\frac{1}{4}\right)-x\left(x+\frac{1}{4}\right)\leq 1-\left(x-\frac{1}{2}\right)\left(x+\frac{1}{2}\right)$$

2. Disequazioni fratte

$$\frac{7x-4}{x^2-4}+\frac{2x}{2-x}>\frac{7}{x+2} \quad \frac{x^2+2x-5}{x^2-6x+8}<0 \quad \frac{3}{x-2}>\frac{2x}{3+x}$$

$$\frac{x^2-3x}{x-2}-\frac{4x-6}{2-x}-x<5 \quad \frac{x+2}{x-2}-\frac{2-x}{x+3}>\frac{10}{x(x+1)-6}$$

$$x-2\sqrt{3}\leq\frac{1-4\sqrt{3}}{x+2\sqrt{3}} \quad \frac{x^2-3}{x^2+3}-\frac{x^2+3}{x^2-3}$$

3. disequazioni di grado superiore al secondo

$$x^3-x^2-9x+9>0 \quad 2x^3-5x^2-3x<0 \quad 2x^3-3x^2>0$$

4. sistemi di disequazioni

$$\begin{cases} x^2 - 4x + 3 \leq 0 \\ x^2 - 4 > 0 \end{cases} \quad \begin{cases} x^2 - 5x + 1 \leq 0 \\ x + \frac{3}{2} > \frac{x}{2} + 1 \end{cases} \quad \begin{cases} x + 1 > x + 3 \\ x^2 - 3x > 4 \end{cases}$$

5. Equazioni irrazionali e in valore assoluto

$$|x^2 - 3x + 1| + 5 = 4x^2 \quad 3 - 2x - \sqrt{x^2 - 1} = 4 - x$$

$$2x - 3 - \sqrt{x^2 + 3x - 4} = 1 - x \quad |2x - x^2| = 3x^2 - x - 1$$

5. Equazioni e disequazioni esponenziali

$$2^{x^2 - 3} = 64 \quad 4^{\frac{3+x}{x-1}} = 2^{5x} \quad 2^{x+1} - 2^x + 2^{x-2} = 5$$

$$e^{\frac{x^2 - x}{x+1}} \leq 1 \quad 2^x - 1 > \sqrt{3} \cdot 2^x - 3 \quad 2^x < \frac{7^{x+1}}{2} \quad 2^x + 2^{x+1} + 2^{x+2} > 14$$

6. Equazioni e disequazioni logaritmiche

$$\log_9(5-x) + \log_9(5+x) = 1 + \log_9 2$$

$$\log_9(1-x) + \log_9(1+x) < 1$$

$$\log_7(6-x) + \log_7(6+x) = 1 + \log_7 3$$

$$\log_{\frac{9}{4}}(2-x) + \log_{\frac{9}{4}}(2+x) < 0$$

$$\log 2 + \log(x^2 - 2x - 1) = 2 \log(x-1)$$

$$\log_3 \left( \frac{x+4}{x-2} \right) > 1$$

$$\log 2 + \log(x^2 - 4x + 2) = 2 \log(x-2)$$

$$\log_2 \left( \frac{x+3}{x-4} \right) > 1$$

$$\ln(x+5) + \ln(x-5) = 2 \ln 5$$

$$\log_2(3-x) + \log_2(x+1) > 1$$

$$\log_{\frac{1}{2}} \left( \frac{x-1}{x+1} \right) < \log_{\frac{1}{2}} x$$

$$\log_{0,5} \left( \frac{3}{3x-5} \right) < -\log_{0,5} x$$

$$\ln \left( \log_2 \left( \frac{2x-1}{3x+1} \right) \right) > 0$$